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# **Socioeconomic Factors that Determine the Phenomenon of Migration in Current Greece: A Quantitative Approach**

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**The thesis is submitted in partial fulfilment of the requirements  
for the award of the degree of  
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## **Abstract**

This doctoral thesis commences with a meticulous examination on whether financial, social and institutional determinants associate with the migration performance in Europe and accordingly in Greece. Motivated by the intensity, the magnitude and the financial recession, this thesis presents three empirical chapters on the examination of the determinants that affect the phenomenon of migration. Prior to these three empirical studies a chapter introduces and defines all the variables used as well as the theoretical and methodological framework of the thesis. The first empirical chapter demonstrates a comprehensive sample of 15 European countries from 1990 – 2012, which have been divided into 3 groups (Weak-EMU, Strong-EMU and Non-EMU countries) in order to investigate the behaviour of each group during these periods. It follows a quantitative analysis of the economic and social determinants on migration, in order to comprehend their relationship with the phenomenon. The chapter concludes with the discussion of our results with an analytical review of the selected variables upon migration. Results reveal that Portugal, Ireland, Italy, Greece and Spain are countries that are more exposed to the financial crisis, something that consequently affects negatively the behaviour of each employed economic variable. Additionally, results detect that one significant outcome is that the GDP growth rate, inflation and the imports of goods are related to migration, while on the other hand the 10-year government bond yield is not affiliated to the phenomenon.

The second empirical chapter covers the financial, social and institutional determinants that motivate Greek nationals to leave their country and emigrate to wealthier destinations during the recent financial crisis. First, it reviews the theoretical explanations for the efficiency of the factors on migration. It then provides a survey on the relevant empirical studies and subsequently an analysis of the variables, which have a significant impact on labour migration. Based on the theories presented, the study develops a model to explain how financial, social and institutional factors are correlated with the economic downturn and lead to adverse financial and social shocks such as massive migration outflows of Greek nationals. More precisely, the second chapter indicates that Greece has been very exposed to the financial crisis, thus had a strong impact on the decision of Greek natives to emigrate. As conditions deteriorate, Greece was in a severe financial situation due to the financial crisis and was dependent on the monetary policy support, something that emerged the country to experience major and drastic changes on its social cohesion. Further, we can identify, that

debt to GDP, exports of goods, ln of imports of goods, long term unemployment and population growth are positively related to emigration from Greece, while on the other hand cash surplus, foreign direct investment and bank capital are negatively associated to the phenomenon.

Finally, we employed advanced techniques to model the factors that motivate the existing regular immigrants in Greece to abandon the country and return to their own during the economic crisis period (return-migration). The findings reveal details on the imbalances of the economic, social and political framework of Greece that consequently affected negatively the growth rate of the country and created a fragile economy with high rates of unemployment and inflation. Hence, it compares the economic, social and institutional factors, which are related to the literature of return migration. According to the estimated results, the phenomenon of return migration is neither related in a predetermined way with unemployment rates nor poverty levels, but with tax revenue, corruption and government debt. Consequently, this situation had a strong negative impact in the behaviour of each financial, social and institutional determinant, with immediate result to the migrant families who pursue an improved quality of life back to their home country.

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## **Declaration**

Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.

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## **Abbreviations**

CENTRAL GOV DEB = Central Government Debt  
COR = Corruption  
EC = European Commission  
ECB = European Central Bank  
ECOFIN = Economic and Financial Affairs  
EMU = European Monetary Union  
ELSTAT = Hellenic Statistical Authority  
EU = European Union  
EXP GOODS = Exports of Goods  
FDI = Foreign Direct Investment  
GDP = Gross Domestic Product  
GNP = Gross National Product  
GRRA = Growth Rate  
ILO = International Labour Organization  
IMF = International Monetary Fund  
IOM = International Organization for Migration  
MARK CAP = Market Capitalization  
OECD = Organization for Economic Cooperation and Development  
OLS = Ordinary Least Square  
PIIGS = Portugal, Ireland, Italy, Greece, Spain  
POP GROWTH = Population Growth  
POV = Poverty  
TAX REC = Tax Revenue  
TOT RES – Total Reserves  
UK = United Kingdom  
UNCTAD = United Nations Conference on Trade and Development  
US = United States  
VAR = Value at Risk

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# **CHAPTER 1. Introduction**

## **1.1. Background of Thesis**

The recent example of Syria has emerged the importance for a study on the phenomenon of migration, which has gained unprecedented momentum in recent months. The situation along migratory routes to Europe and within Europe itself is changing faster than ever before. Approximately, 9 million Syrians have fled their homes since the outbreak of civil war in March 2011, taking refuge in neighboring countries. According to the United Nations High Commissioner for Refugees more than 3 million have fled to Syria's neighbor regions such as Turkey, Lebanon, Jordan and Iraq, while an estimated 6.5 million are internally displaced within Syria. Provisionally, around 150,000 Syrians have declared asylum in the European Union, while member states have pledged to resettle a further 33,000 Syrians. Specifically, on September 2015, it was reported that more than 8,000 refugees crossed into Europe on a daily basis, whereas 5,000 of those refugees were received by Greece alone, the majority of who came from Iraq or Syria. Accordingly on September of 2015, twenty - three European Union home affairs and interior ministers approved a plan without a consensus, compelling "member countries to take in 120,000 migrants seeking refuge on the Continent." Czech Republic Hungary, Romania and Slovakia dispartate the plan and Finland desisted with poorer countries such as Hungary and Slovakia to be more concerned about the financial and social cost of absorbing large numbers of individuals while on the other hand, wealthier ones such as Germany and Sweden comprise ethnic diversity and are able to offer more compassionate support.

The current thesis is inspired by the humanitarian crisis that became an important issue for migrants in Europe and Greece particularly, where 400,000 Syrians have entered the country since January 2015. By comparison, 60,000 Central Americans crossed the border into the US in 2014, something that concluded into an absolute crisis. Nonetheless, the US has approximately 360 million population, while Greece only 12. Specifically, the Greek island of Lesbos, which is primarily a tourist destination, is currently hosting around 10,000 abandoned migrants who escaped from war zones of Syria. As a consequence, their entrance in Greece has made the country and the island in particular a hotspot in Europe's ongoing migration crisis. Whilst Greece is experiencing one of the most significant inflows of migrants in its history, this provoked to European leaders and policymakers their greatest

challenge since the debt crisis.

Additionally, encouraged by the surge of migrants across European region especially from Spain, Italy and Greece, who were detected at the EU's borders during the 2008 financial crisis, this study focuses on the financial, social and institutional factors that 'forcibly' displaced people around the world. Significant losses in wages, elevated unemployment and inflation rates are the major drivers of the migration. In general, individuals and their families decided to migrate when the benefits expected in the destination are greater than those received at home.

Human migration according to Oiarzabal and Reips (2012) is the mobility of people from one place to another with the purpose of living temporarily or permanently in the new location. In addition, this kind of movement is usually over long distances and from one country to another. It is a very complex phenomenon which is determined, to large extent, by the perception and behaviour of individuals concerned. Therefore, there is no comprehensive general theory of migration. "Finding a general theory of migration with universal validity and applicability is the perpetual dream of those working on migration research. To the ambitious this has become an obsession; to the more realistic it has remained a fond hope" Chang (1981). However, the phenomenon of migration is governed by a set of social, economic, political and environmental factors. Many attempts have been made to integrate migration into economic and social theory, spatial analysis and behavioural theory, Johnston et al (1981). A historical review of theories of migration leads to 4 general theories of migration.

- ✓ The first model based upon "general principles" or "Laws" formulated to explain geographic mobility was established by Ernst Ravenstein's «Laws of Migration» (1885) since several of his laws can formulate the migration process. One of the laws states an inverse relation between distance and volume of migration.
- ✓ Gravity model, based on Newton's law of gravitation, goes one step further and states that the volume of migration between any two interacting centres is the function of not only distance between them but also their population size. The model was initially proposed by the exponents of social physics in the nineteenth century, and was later revived in the middle of the twentieth century. It was W.J. Reilly (1929) who had first applied the law of gravitation in 1929 to the retail



trade of a city centre.

- ✓ The third model was introduced by Stouffer (1940) who modified the gravity model for maximum applicability to the study of various forms of flow patterns. These modifications relate to the introduction of some weights to the population size and use of distance in social and economic, rather than geometric, terms.
- ✓ Finally, Everett Lee (1966) proposed another comprehensive theory of migration in 1966. Based on Ravenstein's work, he begins his formulations with factors, which lead to spatial mobility of population in any area. His laws divide factors causing migrations into two groups of factors: **push and pull factors**. Push factors are things that are unfavourable about the area that one lives in, and pull factors are things that attract one to another area. Dorigo and Tobler (1983) describe the push factors as those that give one reason to a person to be dissatisfied with his current locale, while the pull factors are those which allege of distant places and make them appear appealing.

Consequently, the topic of migration generated extensive academic research since the early twentieth century Fairchild (1925); Price (1969); Petersen (1958); Mangalam (1968); Simmons et al., (1977); Kritz et al, (1981); Clark (1986); Borjas (1989); Massey et al (1994); Reilly and Benson (2009); Brettell and Hollifield (2014) with their empirical work provided interesting theoretical explanations in the research area of migration. Subsequent work covered other puzzling phenomena as the existence of return migration in cases of excessively economic crisis. The high volume of work on migration related with the recent financial recession continued after 2007. Evidence by Martin (2009b); Wright and Black (2011); Moser and Horn (2013) on migration, suggest that the impact of the global economic crisis had negative effects on the phenomenon. The development of various theories, such as the push and pull theory, coupled with detailed research into the extent and effects in the phenomenon of migration, lead to a more detailed search of the effects of the recent crisis to people's decision to migrate for a more prosperous future.

Accordingly, this thesis will make an effort to relate the phenomenon of migration with financial, social and political factors based on the push and pull theory. Push and pull theory will be explained more extensively in section 2.1. of Chapter 2. In fact, it is particularly interesting to study the factors that affect the phenomenon of migration in Europe, and especially in Greece.

The geopolitical position of Greece, at the crossroads of Europe, Asia, and Africa, makes it not only a final destination for migrants from Asia and Africa but also a gateway or stepping stone to Western Europe, Antonopoulos (2006).

Moreover, most recent studies conclude that the global financial crisis had a great impact on migration flows Hooghe et al (2008); Mujica et al, (2012); Furthermore, as the 2008 – 2009 recession is the harshest in countries that had severe debt excess including Southern Europe and particularly Greece, the vast majority of the individuals decided to migrate Martin, (2009a); Papademetriou and Terrazas (2009).

At this point we note that in Table 1.1 we give the definition of immigration, emigration and return migration as well as some concrete examples related to their development in Greece.

It is clear that at first glance two research problems arise concerning the phenomenon of migration in Greece:

1. How do push and pull factors affect the “immigration” flow towards Greece.
2. How do push and pull factors affect the “emigration” flow from Greece.

Moreover, a third research problem, less obvious, appears for the case of Greece:

3. How do push and pull factors affect the phenomenon of “return migration” in Greece.

Therefore, our thesis will be built upon those three main research problems. At that point, we need to make clear the motivation of our thesis.

## **1.2. Research Philosophy and Motivation of Thesis**

The purpose of this thesis is to use a unique “crosschecked hand collected” database with information obtained by accurate and precise organization, such as World Bank database and the Hellenic Statistical Authority and address exclusive characteristics that the phenomenon of migration offers in the international literature. The study makes effort to shed light in puzzling issues of the phenomenon of migration and return migration as well, that they have not been studied yet in a satisfactory level and mainly not in a quantitative way. Further, there is a wish to extend the literature of the relationship between the current financial crisis and migration by providing empirical evidence in Greece, reviewing the financial, social and institutional factors that affect individual’s mobility.

Initially, this study analyses the accuracy of the underlying factors in the phenomenon of migration. The variables that we employ investigate their behaviour within the selected

country during the period 1990 – 2012 and shed light on the economic, social and institutional determinants that influence the phenomenon of migration. Therefore, once the financial crisis applies in several issues, the crucial point becomes its correlation with migration. De Grauwe (2010b); Arango (2013) argue that the financial crisis hit severely Europe and particularly Southern countries with high rates of unemployment and inflation, something that provoke elevated waves of migration, in order individuals to escape from financial anxiety. Lopez - Sala and Ferrero - Turrion (2009); Jones (2013) document the positive relationship between some financial, social and institutional variables, such as unemployment, high inflation rates, GDP per capita, population growth and migration. This is followed by an empirical analysis of the factors that may influence the performance of migration decisions. There is a general impression that the current global economic crisis hit Europe and Greece harder than expected, with severe negative consequences on economic and social performance of the countries, with notable increase of individuals' mobility Castles and Vezzoli (2009); Martin (2009a). In order to explore the motives, this study investigates whether the employed determinants have a positive relationship with migration during the recent financial downturn and relates this activity to immigration not only within Greece but also regarding Europe. More precisely, we extend our investigation for the phenomenon of immigration to three different country – groups in Europe and then focus on the case of Greece. The emigration activity as well as the return migration will then be examined solely for the case of Greece.

This study makes important contribution to the financial and sociological literature. First it provides new evidence on the effect of a number of financial/economic, social and institutional factors on the phenomenon of migration, which shed light on the perplexing indication found in prior work on the subject. Second, to our knowledge this is the first study to examine and modelling the structural links between financial, social and institutional variables and migration in Greece in such context. Third, our study scrutinizes if the factors employed are applied in a similar manner in Europe and Greece particularly and provides insights on the components of migration, while simultaneously it tests how Greece reacts under the current financial crisis affecting thus immigration and return migration decisions. Our findings also have important implications for international academic community and political institutions, as they could use the methodology and extend the results with new data on human migration in the future, use the relevant factors in order to try and find the possible causes for the phenomenon of migration as well as possible solutions but even try to go one

step further by making some forecasting.

### **1.3. Necessity and contribution of the current study**

It is well known that the phenomenon of migration has been explored in a satisfactory level by the researchers. Despite the extensive research, academia witnesses an increase in the volume of studies. One of the main reasons is the current financial crisis in 2008, which began in the US financial sector and spread globally Reinhart and Rogoff (2009). A credit fuel spending boom adjoined to elevated home prices not only in the US, but also in the European region, came along with a sharp fall of the global trade and rise to unemployment and inflation rates, Martin (2009b). The phenomenon of migration was selected because it presents a great number of financial, social and institutional determinants (i.e. unemployment, inflation rate, GDP per capita, central government debt) that make the study interesting in the context of the international evidence. Recent changes due to the financial crisis in major sectors of the society, such as construction, manufacturing, financial and travel related services, has sparked our interest to study the changes that they bring to migration process (ex. Return migration decisions).

The importance for this study becomes even stronger, as there are no similar studies at a global level in the issues that this study examines. Specifically, no international evidence concerning the accuracy of determinants associated with migration has been detected. This could be due to the fact that in some countries quantitative analysis of the factors that may affect migration are not included in their promises. It is a particular motive to fill the gap in the literature, as studying the variables that contribute to the growth of migration is considered more than necessary in order to assess the value of the phenomenon.

There are several important features of the analysis, which we believe extent the literature on the empirical aspects of the phenomenon of migration. Firstly, as all the evidence in migration is mainly restricted to the British Commonwealth countries, this study belongs among the very few that investigates non-Commonwealth countries as well with the focus on the case of Greece. Second, the analysis of the determinants is based on a unique database, which provides details on financial, social and institutional cohesion of each country. Third, the financial recession, which hit severely Europe since 2008, is a motive to search for factors that have a significant impact on migration. Fourth, this case is distinct from previous empirical studies as it will attempt, in the first empirical chapter, a direct

comparison among three different country groups regarding the extent the current crisis affect their migration procedures but also, in the other chapters, a focus on the case of Greece in which we study not only the phenomenon of immigration but also the emigration process as well as the return migration process that has been stimulated by the profound economical crisis.

The thesis builds on the findings of a numerous number of international studies namely finding by Reinhart and Rogoff (2010), Checherita and Rother (2010) on the relationship of the financial determinant, such as GDP growth rate on public debt and migration; by Mumtaz and Surico (2011) for the contribution of high inflation rates on the phenomenon of migration; by Barell et al, (2007), Koser (2010) (2010); De Haas (2010), Clemens (2015) who shed light on the economic factors that affect migration during the financial downturn.

Similarly, this study refers to the conjectures of the most recent empirical evidence in Greece by Cholezas and Tsakloglou (2008), Kouretas and Vlamis (2010), Christodoulou and Christodoulou (2013), Cavounidis (2013), Economou et al, (2014). These studies have mainly focused on the financial, social and institutional factors that affect the phenomenon of immigration to Greece and return migration intentions from the country but in a qualitative approach. To the best of the author's knowledge, there is lack of quantitative studies in international level, regarding the precision of the factors that are related with migration which is our main contribution.

#### **1.4. Historic evolution of migration patterns**

In this section we will provide a historic review of the phenomenon, by paying particular emphasis to the period of the study. A summary table can be found at the end of this chapter (Table 1.1).

International migration has played a significant role in the rise and fall of empires, states, and affiliation of states as the world moved through the major political and financial stages of mercantilism, colonialism, industrialization and globalization Massey (1990). According to Patsiaouras (2008) the western culture during the great discoveries came in contact with many different tribes, which had different customs and ways of life and different way of thinking and living of the indigenous inhabitants of these areas. Long-distance migration definitely is not a new phenomenon. For thousands of years humans have moved

around the world in search for food, in flight from enemies, or in pursuit of riches, spreading their cultures, languages, diseases and genes. Human settlement spread through Europe, Africa and Asia but the process was very slow.

Historians, who thoroughly study the phenomenon of migration, agree that migration flows used to and continue to be until recent days important paths of social, economic and cultural change. Though it was not possible to determine at the past the exact number of immigrants, nonetheless, it turns out that there are enough data regarding the existence of immigrants in all periods of history.

Historically, the first big wave of human migration took place along the southern coastline of Asia to India and Australia approximately 50,000 years ago, Bowler et al. (2003), while the first humans reached Europe 40,000 years ago, Benazzi et al. (2011), and America in 3,000 BC. Very important civilizations such as the Egyptians, the Romans, Athenians and Mesopotamians were based on these population movements in order to improve their conditions of living. In ancient times, Greek sailors founded colonies along the Mediterranean and Black Sea coasts. In addition, the expansion and conquests of the Romans in Mesopotamia, Indian and Zhou made it a great empire. Manning and Sidorenko (2007) point out that during these centuries human migrations flows changed the culture of the people, not only of those who immigrated, but also of those who accepted the migrants. Other major migrations flows in the early history of the phenomenon include the Vikings and Crusaders in the Holy Land. About three centuries after the voyage of Christopher Columbus, a time created known as «early modern times» Manning (2005), during the course of which, about two million people crossed the Atlantic Ocean from Europe to settle in America. Between the 1630s and the American Revolution, approximately half of British migrants to North America travelled as indentured servants. Nonetheless, the system soon came under pressure, particularly in the sugar colonies, where servants faced harsh working conditions and planters exploited a growing supply of slaves Galenson (1984). Even though they were not perfect surrogates, by the end of seventeenth century, slaves were displacing indentured servants as the main source of labour in the southern colonies, Grubb (1994).

The following period of immigration is focused on the US emergence as a major economic power. Millions of workers from economically stagnant areas and by oppressive political regimes of North, South and Eastern Europe moved to the US from 1850 until the

Great Depression of the 1930s. This period is characterized by free migration both within Europe and North America as Economic liberalism had abrogated all of the obstacles of mercantilism, including control over population movements, by the mid-1800s, Bankston et al. (2006).

During most of the half century leading up to World War I there were therefore no controls restricting travel abroad in Europe, with the exception of Czarist Russia. The number of those traveling abroad remained relatively modest at this time, and passports were not required for travel between countries. People could, in fact, begin to work in a new destination without seeking a permission to do so, Marrus (1985). It is during this same era that the European population began to significantly increase due to the combination of a high birth rate and a low death rate. Notably, between 1800 and 1860 approximately 66% of immigrants came from Great Britain and 22% from Germany Castles et al., (2005). Specifically, the period from 1820 to the First World War saw the rise of mass migration as 55 million Europeans emigrated to North America, South America (21%) and Australasia (7%) Hatton and Moloney (2015). Since 1800 through 1930, about 40 million people immigrated from Europe to North America.

Specifically, since 1850 to 1914, a great number of immigrants from many European countries, mainly from Italy, Spain and Eastern Europe moved to ensure a better quality of life. Particularly, the great growth in immigration from the 1870s was dominated by the countries of southern and eastern Europe, particularly Italy, Ireland, Spain, and Russia. Statistics hide enormous variations in immigration rates. The highest was Ireland with a gross immigration rate of 13 per thousand per annum between 1850 and 1913. Countries such as Sweden and Norway approached approximately five per thousand in 1870-1913, while the rates for Germany and Belgium were less than two per thousand and that for France was very limited Massey et al., (1994).

The era after the Second World War is characterized as another milestone in the history of migration. A large number of people got advantage by migratory programs that founded from USA, Canada, Australia and Argentina. This was the period in which the overwhelming majority of Turks migrated to Germany in order to improve their living standards. A similar situation was the inhabitants of Africa, who moved to France and Belgium. Mousourou (2003) mentions that during the post-war period, the migratory

movements that took place in Europe, that is, intra-European or modernist movements did not take place with political purposes (e.g. refugee waves), but mainly for economic reasons. While, according to Veremis (1983), the most modern migrations associated with industrialization are linked to socio-economic development of countries, as identified with the changes in place of residence of the respective workforce.

According to Zimmermann (1995) migration movements that took place in Europe after the Second World War, are categorized into four periods: the period of post-war adaptation and independence of the colonies beginning in 1945 until the early 60s, in which approximately 20 million refugees went to France, Great Britain and Belgium, in search of a better quality of life. The second period takes place from 1955 to 1973, in which there is a particular increase in labour migration. Especially, many countries such as Germany, France and Switzerland have opened their borders to immigrants in order to enrich their workforce. The 1973 Oil Crisis started on 15 October 1973, when the members of the Organization of Arab Petroleum Exporting Countries proclaimed an oil embargo in response to the US decision to re-supply the Israeli military during the Yom Kippur war. This followed several years of steep income declines after the end of Bretton Woods. The consequent increase in the price of oil led to the massive accumulation of wealth by oil exporting states, which led to a global recession and a global stock market crash. The 1973 oil crisis has been identified as a major turning point in global migration patterns and policies Castles and Vezzoli (2009).

Accordingly, the period between 1974 and 1988 is characterized by fairly limited migration because of rising social tensions and fear of recession after the first shock of oil prices. Nevertheless, the family and immigration policies increased as well as the number of first illegal immigrants. The fourth period occurs since 1988, after the fall of socialism. According to Zimmermann (1995) "the total number of refugees was only 190 000 in 1987, but had already reached 700,000 by 1992". Additionally, the Asian financial crisis began in July 1997 in Thailand with the financial collapse of the Thai baht. As the crisis spread, most of South-East Asia and Japan experienced devaluated currencies and stock markets, a reduction in asset prices, and a tremendous rise in private debt Koser (2010). Although the migration impacts of the crisis were modest, several governments introduced and started to expel migrants. According to Soonthornhada, (2001) a specific migration process reported during the Asian financial crisis was increasing exploitation by 'middle men' or agents, taking advantage of increased demand in countries most affected by the crisis to migrate



elsewhere for work. A number of employment agencies in Indonesia, for instance, were investigated for exorbitant charges to place maids in Hong Kong. Increasing profits for recruitment agencies were also reported in the case of Thailand.

### **1.5. The recent crisis and its present dimension**

In September 2008, the collapse of Lehman Brothers, a sprawling global bank, almost crashed the global financial and social system, engendered a plethora of financial and institutional defaults with an extensive devastation of jobs and livelihoods Gemi (2014);. The subsequent credit crunch turned what was already a nasty plunge into the most severe recession since the 1930s Reinhart and Rogoff (2011); Aiyar and Chandra (2012). Hence, the financial crisis can be described as having been a "perfect storm": a confluence of various conditions that not only triggered financial and economic turbulence but also great social and political inequalities. In table 2.1 we illustrate the most important waves of immigration from the early prehistoric times until the most recent immigration outflows due to the financial recession.

According to United Nations (2009) among the numerous inequalities is the yawning gap between wage levels and productivity growth in the aftermath of the financial recession. Even though the productivity has been evidenced in many countries which in fact would lead to rising wages and incomes, the share of national income going to employers has been falling especially in the USA and Europe due to the financial crisis, International Labour Organization (2008).

Hence, the slowdown of the economy, which first impacted advanced economies, has produced undulate effects on almost every financially developed country. Employment losses and stoppage in job growth have contributed to extensive increases in unemployment rates, Seguino (2010). As many countries faced difficulties on payment balances, alongside with the austerity measures adopted, the financial and social context has been altered dramatically and consequently impacted individuals' conditions of living. Growing disparities in development, the segmentation of labour markets, revolutions in transportation and communications combine to explain why there is a growing number of migrants in the world today, approximately over 200 million Koser (2010). Douglas (2010) indicates that during the financial recession the world was challenged by a lack of employment crisis. The

International Labour Organization estimates that approximately 61 million people were unemployed due to the crisis, ILO (2015).

The economic slowdown had a notable impact on workers in certain industries not only inside the EU but internationally. Construction, as for instance, was among the most affected sectors in countries such as Ireland and Spain, where there had been a large boom in residential construction prior to crisis. In Ireland, the dramatic decrease in the construction sector explains most of the decline observed in total employment. In the United States, in 2008, the impact of the financial recession had already spread to most sectors but it was especially prominent in the construction sector. During the first two months of 2009 employment decreased further by more than 3% in construction Hatton and Williamson (2008). Accordingly, in the United Kingdom, the finance and business services industry has suffered the most while in France food processing and manufacturing industries, notably the car industry, have been all mostly affected so far, Kahanec and Zimmermann (2009).

Social change is a significant and enduring impact that the phenomenon of migration impose in all periods and in all countries. As prior homogeneous societies have gradually undergone change and have evolved into multicultural societies, this resulted in some countries to be considered as something undesirable, while in others it is still much debated, Topaloglou and Petrakos (2008).

Nowadays, governments face growing challenges regarding the issue of the management of migration and thus migratory policies are becoming more widespread and more globalized. In 1965, there were about 75 million migrants around the world, while by 2002 the number had risen to 175 million (IOM, 2012). Additionally, according to Kassimis and Papadopoulos (2006) in the 60s, about 30 million "guest" workers moved to Europe, introducing the concept of the "seventh man" as one in seven Europeans was a foreigner in their country of destination. Today almost every country seems to be the recipient of some migration wave and the traditional classification of countries affected by the phenomenon divided into countries of origin, transit and destination.

### **1.6. Contemporary History of migration in Greece**

At the beginning of the twentieth century, Greece was mostly a country with outwards immigration flows, the majority of migrants had as their destination the United States. After

the second World War and until the mid seventies, approximately one million people, which corresponds to over ten percent of the total Greek population, left Greece to emigrate primarily to Europe, Australia, and North America, Karakatsanis (2003). In Europe, migration flowed towards countries such as in the Federal Republic of Germany, where there was a labour shortage in the rebuilding process after the second World War, or about 65,000 Greeks who sought refuge in former Soviet Bloc countries after the defeat of the left-wing forces in the Greek Civil War (1946-49), in France for its sociocultural context especially during the Greek military junta of (1967–1974), commonly known as the Regime of the Colonels, Kiprianos et al. (2003).

However, after the collapse of the military dictatorship in 1974, some of the Greek refugees began to resettle in Greece and together with other several occurrences the migration patterns changed in Greece. From a country of emigration, Greece became an immigration country, where most of the immigrants to Greece in this time period were repatriated Greeks, Faas (2011). The immigration boom reached its peak towards the beginning of the 1990s, following the fall of the Soviet Union in 1989, when co-ethnic Greeks (meaning foreigners with Greek heritage) from former Soviet bloc countries, co-ethnic Greeks from Albania and other Balkan nations, and economic migrants from the Balkans and Eastern European countries like Russia, Ukraine, Georgia, Bulgaria, Romania, and Poland, flooded into Greece, Faas (2011) and Triandafyllidou (2009). Many came to escape turmoil and conflict in their homeland or for the economic opportunities afforded to them in Greece, a member of the EU with a large informal market. However, at the beginning of the 1990s, Greece did not have the legislative framework to practically manage and control immigration, whose legislation was dated back to the 1920s and made it incredibly difficult for migrants to enter Greece legally for work purposes; it was obligatory for a migrant to have a work permit to enter Greece, which they must have obtained from their home consulate only after having acquired a job in Greece, Triandafyllidou (2009). The Greek government began immigration policy reform in 1991, Kiprianos (2003), In the mid-90s the Greek immigration policy relied mostly on massive deportation of mainly Albanian immigrants, hoping to discourage immigration to Greece. This policy tool was largely ineffective and the Greek government had to rethink its immigration policy at the beginning of the twenty-first century, Triandafyllidou (2009). While strides have been made to bring immigration policy in line with EU directives, immigration was still not a high priority for the Greek government, even as migrants continued to make up large portions of the Greek population, Lazaridis et al. (2002).

Until the last years, the large majority of immigrants to Greece come from Albania, which constituted the 63.7% of the total documented migrant population in Greece, followed by Bulgarians, Georgians, Romanians, Russians, and Ukrainians, Antonopoulos (2006). Immigrants were employed in construction, industrial manufacturing, and agriculture, Baldwin-Edwards (2002).

Documented immigrants in the 2011 census totalled 911,299, or almost 9% of the Greek population, NSOG (2014). More than half of the legal foreigners are in the greater Athens area, and a quarter can be found in Thessaloniki, Greece's second largest city to the north. About half of the legally employed foreigners are either ethnic Greeks or citizens of the EU; however, about 79% of undocumented immigrants come from former socialist countries, with the remaining 21% coming from over one hundred predominantly Third World countries, NSOG (2014).

The number of work permits to non-ethnic Greek foreigners is just 0.33% of the registered labour force, the lowest number in the EU, on the other hand, undocumented labour by foreign migrants is estimated to constitute 24% of the GDP of Greece, Faas (2011).

Many irregular entrants and illegal immigrants do not see Greece as their final destination; they plan to work only to raise enough funds to move on to other countries in the EU, others come to Greece to stay, no matter how long their stay in Greece, Faas (2011).

### **1.7. Present dimensions of the phenomenon in Greece**

Migration movements particularly in the Mediterranean countries have received extraordinary impetus in recent months. The situation in Europe is altering faster than ever before. Approximately 9 million Syrians have abandoned their homes since the outbreak of civil war in March 2011. According to the United Nations High Commissioner for Refugees (United Nations Department of Economic and Social Affairs. 2012) more than 3 million immigrants have absconded to Syria's neighbouring regions such as Turkey, Lebanon and Iraq, while 6.5 million are internally displaced with Syria and 150,000 have entered the EU.

According to Eurostat (Eurostat. 2015) EU member states received 626,000 asylum seeker applications in 2014, the second highest number since 1992. Four countries, Germany,

Sweden, Italy and France, received over two – thirds of the EU's asylum applications and approved almost two – thirds of protection status in 2014. In the first half of 2015, EU member states received 395,000 new asylum applications, Eurostat (2015). In recent months, migrants in their vast majority from Syria and Afghanistan accounted for 90% of the arrivals in Greece, mainly to the islands. Migrants make an approximate of 6km water crossing to the Greek islands of Chios, Kos and Lesbos, which are close to Turkey.

Therefore, with the massive inflows of Syrians immigrants in Europe, this has created unexpected and very serious financial, social and political issues, which submerge the European continent and especially Greece. According to the Economist (2015) the continuing influx of immigrants arriving at the borders of the EU provoked great implications on public finances. The net direct contribution of immigrants tends to be smaller than the native ones as they pay fewer taxes due to their lower levels of employability, especially among women. Holger Schmieding (2015) indicates that extra spending on migration related issues will cost approximately 0.3 – 0.4% of annual GDP in Germany and a few other European countries such as Greece and Italy.

Alongside, Greece faces the financial crisis since 2009 with extremely high unemployment rates and elevated tax evasion, ELSTAT (2013). As a result, Greece would have been the last place in Europe ready to associate with the newest phenomenon. Nonetheless, Greece in order to make an effort to find solutions to face its record unemployment and debt, requests for more help from the EU. As immigrants, who arrive in Greece's shores every day, need financial support, the country received 259 million from the Asylum, Migration and Integration Fund (2014-2020), which unfortunately were not enough. As a consequence Greece, that has been hit so hard by the austerity measures, will need an extra provision in order to fortify its capacity to offer help among the immigrants, Sciubba (2015).

## **1.8. Methodology and Structure of Thesis**

The thesis is organized in the following way. After the present introductory chapter where we have set the background of the thesis, the research philosophy and motivation, the necessity and contribution of our study as well as a short historic evolution of migration patterns, we will use chapter 2 to explain the theoretical and conceptual framework of the thesis. We will start with the general theoretical framework which inspired our work,

followed by a literature review on the determinants. We will introduce and define all the financial, social and institutional factors that will be related to the phenomenon of migration. We will discuss the relevant research evidence and why some factors are rejected for our quantitative analysis. We will then give information about the way we set our database with the information obtained about the factors that we will study. Finally at the end of chapter 2 we will present the theoretical model that will be used in the rest of the thesis as well as the main hypothesis for regression models. In order to address our hypotheses for our empirical analysis, ordinary least square (OLS) model will be employed for the purpose of measurement of the behaviour of the selected variables. Thus, for the adaption of this model Stata 13 will be used in order to adopt a constant econometric analysis of our data. Nonetheless, whilst our sample size is small it is more than necessary to apply a method that does not require distributional assumptions such as normally distributed errors and can also provide more accurate inferences when the data are not well behaved. Particularly, bootstrapping offers a number of advantages, as it is quite general and it is possible to employ it to statistics with sampling distributions that are difficult to derive, while additionally it is relatively simple to employ it in complex data-collection plans as for instance stratified and clustered samples.

In each empirical chapter we state some hypotheses on the coefficients of the variables of the regression model.

We will calculate the Pearson correlation matrix among variables used in the cross sectional regressions. We discuss the significance of each coefficient and make some tests in order to check on how well our data meet the assumptions of OLS regression.

After each regression analysis we generate residuals with STATA's 'predict' command and check normality using the Shapiro-Wilk W test for normality ('swilk' command in STATA). In this test the p-value is based on the assumption that the distribution is normal. If the p-value is too low, normality is rejected in which case our model would need further investigation.

Moreover, we also check multicollinearity by using the package COLLIN to compute variance inflation factors (VIF) for the variables. Tolerance, defined as  $1/VIF$ , is used to check on the degree of collinearity. A tolerance value lower than 0.1 is comparable to a VIF greater than 10, in which case the variable could be considered as a linear combination of other independent variables and the model would need a different approach as for the independent variables.

Chapter 3 demonstrates a comprehensive sample of 15 European countries from 1990 up to 2012, which have been divided into 3 ‘monetary’ groups (Weak EMU, Strong EMU and Non-EMU) which seem to have same financial and economic characteristics, in order to investigate the behaviour of each group during these periods. It follows a quantitative analysis of the economic, social and institutional determinants on migration, in order to comprehend their relationship with the phenomenon. The chapter concludes with the discussion of our results with an analytical review of the selected variables upon migration not only for the 3 groups of countries but also for the special case of Greece that we will focus on in the two chapters to follow.

Chapter 4 covers the financial, social and institutional determinants that motivate Greek nationals to leave their country and emigrate to wealthier destinations during the recent financial crisis. First, it reviews the theoretical explanations for the efficiency of the factors on the phenomenon of emigration from Greece. It then provides a survey on the relevant empirical studies and then an analysis of the variables, which have a significant impact on labour migration. Based on the theories presented, the study develops a model to explain how financial, social and institutional factors are correlated with the economic downturn and lead to adverse financial and social shocks such as massive migration outflows of Greek nationals.

Chapter 5 outlines the factors that motivate the existing regular immigrants in Greece to abandon the country and return to their own during the economic crisis period. First it provides details on the imbalances of the economic, social and political framework of Greece that consequently affected negatively the growth rate of the country and created a fragile economy with high rates of unemployment and inflation. Second, it compares the economic, social and institutional factors, which are related to the literature of return migration. Third the study provides a comparative analysis of these factors and we apply regression analysis to test their accuracy allocated to migration. The chapter concludes with a discussion of the effect of the selected variables on immigrants to return to their home countries.

Finally, chapter 6 concludes the thesis by summarizing the stylized facts obtained from the research and discusses the findings. It also tries to link the results of the three empirical chapters in order to obtain a more general and conceptual overview of the phenomena. Additionally, it describes the contributions to the existing literature, limitations of this study and extensions for future research.

**Table 1.1: Table of Definition of Immigration, Emigration and Return Migration**

In the table, we have drawn the three different orientations among immigration, emigration and return migration, Johnston (1981), and examples related to their development in Greece.

	<b>Immigration</b>	<b>Emigration</b>	<b>Return Migration</b>
Definition	Is the movement of people into a country to which they are not native with an aim to settle, especially as permanent residents. Immigrants are motivated to leave their native countries for a number of factors, including economic, political, or social ones.	Is the act of abandoning one's native country with the intention to temporarily or permanently settle in a different destination. On the contrary, <b>immigration</b> describes the movement of people <b>into</b> one country from another.	Is the type of migration, where immigrants return to their country of origin by their own choice usually after a long period abroad.
Example of Greece	2004 During the last decades the phenomenon of immigration played a crucial role in formatting the economic and social landscape of Greece Cavounidis (2013). Since the beginning of the 20 <sup>th</sup> century, Greece became a major immigrant receiving country with massive <b>inflows</b> of immigrants from the neighboring Balkan countries, with Albania topping the list of source ones. Particularly, in 2004 586,044 immigrants decided to abandon their origins and arrived in Greece El.Stat (2013).	Before the financial crisis of 2009, Greece was flawed by a great variety of contradictory factors which include rapid evolution of the Greek state, quick economic growth and governance that was based on legal institutions. Consequently, there was no require for native Greeks to abandon their home country and transfer themselves to alternative, more prosperous destinations. Specifically, the Greek outflows in 2004 were only 46,534 El.Stat (2013).	Long ago before the recent financial recession, the vast majority of immigrants decided to abandon their home countries and migrate to Greece in search of a better life and create an improved socioeconomic mobility Gemi (2014). Most migrants chose Greece due to its proximity to their countries and as it was the most prominent and appealing country for their endeavours.
	2011 On the other hand, the financial crisis that spated Greece since 2009, has resulted in new alterations of the Greek immigration experience, which further changed the economic and institutional landscape of the country. Due to unfavorable work conditions (low wage, high unemployment rate) the Greek economy worsens markedly, something that decelerated the immigrants' inflows into	In contrast, the sharp increase in unemployment since the economic crisis of 2009 have caused many Greek natives to seek employment abroad Lianos and Cavounidis (2012). Accordingly, the financial crisis led to job insecurity, high unemployment rate and poverty. During the 2 <sup>nd</sup> quarter of 2013 the number of employed people amounted to 3,632,184, while the unemployed to 1,350,435 and the unemployed rate was	Contrary, the situation with the recent outbreak of economic crisis in Greece and the harsh austerity measures adopted, provoked a transnational mobility of the immigrant workers back to their origin country Carling and Erdal (2014). Additionally, they imply economic crisis led to high unemployment rates and significantly shrunk family incomes, something that provoked a return back home strategy plan



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the country. Specifically, in 2011 the number of immigrants falls into 23,206, while the flows of return migration have significantly expanded El. Stat (2013).

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27.1% El.Stat (2013). Particularly, we can observe that in 2011 23,600 Greek natives decided to emigrate and seek for an improved future abroad.

**Table 1.2: Table of Migration waves**

In the table, we have addressed the main migration periods within time.

<b>Time Period</b>	<b>Description</b>
Prehistoric	Distinguishable groups of people have moved from area to area of the world. In prehistory the movement of a group is usually evident through traces of a shared language, which the migrants bring to a new place. Sometimes, large numbers of people arrive so suddenly, and with such hostile intent, that they are unmistakably recognizable as a group. They usually have a close tribal link with each other, and their names are likely to be remembered with revulsion. There are therefore infinitely variable facets to the movement of peoples. Colonial ambitions take the Spaniards to <u>America</u> , where they exploit the Indian population but also interbreed with them. The same impulse takes the British to America and <u>Australia</u> , where they persecute the original inhabitants but they remain separate and exclusive.
1492-1787: The Age of Exploration and Colonial Migration	Migration researchers support that a significant turning point in the history of migration happened approximately 500 years ago with the voyages of the European explorers in search of the discovery of ‘new worlds’. The most crucial determinants that impacted these migration flows were economic and political.
1846 – 1939: The Industrial Revolution	The importance of new industrial technologies, the industrialization of means of production and the merger of industrial activity contributed to large immigration outflows. Specifically, between 1846 – 1890 approximately 17 million people left Europe for the new world, while the pick of migration waves was at the end of the century. Over the whole period over than 50 million people decided to leave Europe and migrate to the US (38 million), Canada (7 million), Argentina (7 million), Brazil (4.6 million), Australia, New Zealand and South Africa (2.5 million) <sup>1</sup>
1914 – 1945: Migration in two World Wars	The era between the two World Wars was one of reduced migration movements, due to the economic inactivity and due to the general background of uncertainty. During the 1930’s financial depression, migrant workers were seen as competitors for limited vacancies, thus levels of hostility regarding them elevated. The Second World War is identified as another significant milestone in migration history. The devastation created within the European area because of the war contributed to the movements inside the continent.

<sup>1</sup> [http://www.rcmvs.org/documentos/IOM\\_EMM/v1/V1S03\\_CM.pdf](http://www.rcmvs.org/documentos/IOM_EMM/v1/V1S03_CM.pdf)

1945 – 1955: Post war adaptation	Approximately 20 million refugees went to France, Great Britain and Belgium, in search of a better quality of life.
1955 – 1973: Increase in labour migration	There is a particular increase in labour migration. Especially, many countries such as Germany, France and Switzerland have opened their borders to immigrants in order to enrich their workforce.
1973 – 1988: Oil crisis consequences	The 1973 Oil Crisis started on 15 October 1973, when the members of the Organization of Arab Petroleum Exporting Countries proclaimed an oil embargo in response to the US decision to re-supply the Israeli military during the Yom Kippur war. The consequent increase in the price of oil led to the massive accumulation of wealth by oil exporting states, which led to a global recession and a global stock market crash. The 1973 oil crisis has been identified as a major turning point in global migration patterns and policies.
1997: Asian financial crisis	The Asian financial crisis began in July 1997 in Thailand with the financial collapse of the Thai baht. As the crisis spread, most of South-East Asia and Japan experienced devaluated currencies and stock markets, a reduction in asset prices, and a tremendous rise in private debt Koser (2010). Although the migration impacts of the crisis were modest, although several governments introduced and started to expel migrants.
2008: International financial crisis	In September 2008, The collapse of Lehman Brothers, a sprawling global bank, almost crashed the global financial and social system, engendered a plethora of financial and institutional defaults with a extensive devastation of jobs and livelihoods. Growing disparities in development, the segmentation of labour markets, revolutions in transportation and communications, combine to explain why there is a growing number of migrants in the world.
2015: European Migration Crisis	The European Union is struggling to respond to the numerous influxes of desperate immigrants from Syria, Afganistan and Iraq. The overflow of immigrants is the largest movement of people in Europe since 1945 and provoked serious doubts about open borders.

## **CHAPTER 2. Theoretical Framework, Conceptual Framework and Literature Review on Determinants**

There are a number of reasons why people choose to migrate to another country. The demand for workers from other countries in order to sustain national economies attire “economic migrants” who are generally from impoverished developing countries and migrate to obtain sufficient income for survival. This income is usually sent home to family members in the form of remittances and has become an economic staple in a number of developing countries. People also move or are forced to move as a result of conflict, human rights violations, violence, or to escape persecution, Oiarzabal (2012). Another reason people move is to gain access to opportunities and services or to escape extreme weather. This type of movement is usually from rural to urban areas and is known as “internal migration”. Socio-cultural and geo-historical factors also play a major role, Oiarzabal (2012).

### **2.1. Push and Pull Theory**

There are a number of theories to explain the international flow of people from one country to another, Jennissen (2007). In our introduction we have made a short historical review of the 4 general theories of migration. Ravenstein (1885) was the first to formulate general principles based on laws of social science trying to describe human migration. Most of his generalizations hold good even today, and can be listed as follows, Johnston (1981) :

- ✓ every migration flow generates a return or counter migration.
- ✓ the majority of migrants move a short distance.
- ✓ migrants who move longer distances tend to choose big-city destinations.
- ✓ urban residents are often less migratory than inhabitants of rural areas.
- ✓ families are less likely to make international moves than young adults.
- ✓ most migrants are adults.
- ✓ large towns grow by migration rather than natural increase.
- ✓ migration stage by stage.
- ✓ urban rural difference.
- ✓ migration and technology.
- ✓ economic condition.

In 1966, Everett Lee proposed another comprehensive theory of migration where he begins his formulation with factors, which lead to spatial mobility of population in any area. Those factors are:

- ✓ Factors associated with the place of origin,
- ✓ Factors associated with the place of destination,
- ✓ Intervening obstacles, and
- ✓ Personal factors.

According to Lee (1966), each place possesses a set of positive and negative factors. While positive factors are the circumstances that act to hold people within it, or attract people from other areas, negative factors tend to repel them. Moreover, there are factors to which people are indifferent and remain neutral. Migration in any area is the net result of the interplay between these factors.

Further, Lee (1966) suggests that individuals involved in migration have near perfect assessment of factors in the place of origin due to their long association. However, the same is not necessarily true for that of the area of destination. There is always some element of ignorance and uncertainty with regard to reception of migrants in the new area.

Apart from the factors associated with places of origin and destination, and the intervening obstacles, there are many personal factors, which promote or retard migration in any area. The decision to migrate is the net result of the interplay among all these factors. As a consequence, Lee's laws (1966) divide factors causing migrations into two groups of factors: **push and pull factors**. Push factors are things that are unfavourable about the area that one lives in, they convince people to leave in search of something better, and pull factors are things that attract one to another area. In other words, many people, due to unfavourable conditions, decide to leave their home countries and establish themselves to new ones, because of favourable factors.

According to the push – pull theory, people decide to migrate due to economic, social, institutional or environmental forces in the destination region that prompt them to do so, or because they were attracted areas of destination with one or more economic, social, institutional or environmental factors. More specifically, the phenomenon of globalization

made a big impact on the original motivation of people to migrate Rasool, Botha and Bisschoff (2012), due to the increasing demand for “economic migrants” from other countries in order to sustain national economies.

These determinants, that include high cost of living, high levels of taxation and job insecurity, Mattes et al., (2000), Rogerson (2001), Ramphela (2008), push the potential immigrants out of their country and result in an increased loss of skills. Harvard Group indicates that this loss of human resources deficits is a significant limitation for a future development of a country.

The push and pull factors can be enumerated as follows, Lee (1966):

- **Push Factors:** Not enough jobs, few opportunities, inadequate conditions, desertification, famine or drought, political fear or persecution, slavery or forced labour, poor medical care, loss of wealth, natural disasters, death threats, desire for more political or religious freedom, pollution, poor housing, landlord/tenant issues, discrimination, poor chances of marrying, condemned housing (radon gas, etc.), war.
- **Pull Factors:** Job opportunities, better living conditions, the feeling of having more political and/or religious freedom, enjoyment, education, better medical care, attractive climates, security, family links, industry, better chances of marrying.

In general the push and pull factors are distinguished in financial/economic, social, institutional (or political) and environmental factors, Massey et al. (1993). As stated in the introduction, we have three main research studies in our work:

1. The study of the “immigration” flow towards three different country – groups in Europe, with a focus on the case Greece, in relation with push and pull factors.
2. The study of the “emigration” flow from Greece in relation with push and pull factors.
3. The study of the phenomenon of “return migration” in Greece in relation with push and pull factors.

We will proceed with a quantitative approach, using the regression analysis, regarding the

precision of the factors that are related with migration for each of the research question. The recent financial turmoil has made clear that there is a strong need for empirical work in this area, in order to evaluate the relationship between the phenomenon of migration and the socioeconomic conditions in Europe, Rogerson (2001). However, we need first in this chapter to introduce and define the different determinants that we will in our thesis and set up the general methodology used for the quantitative analysis.

## 2.2. Dependent variables

We start this section with the definitions of the terms related to the phenomenon of migration, Johnston (1981), which will be the so called “dependent variables” of our model.

Variable	Definition
Migration Inflows	The total number of immigrants who flow in a country (natives and non natives).
Migration Outflows	The total number of immigrants who flow out of a country (natives and non natives).
Emigration	The act of leaving one's native country with the intent to settle elsewhere (only natives).
Return Migration	The voluntary or involuntary return of travellers and migrants to their place of origin. For a given country it can be seen either as the natives that “come back” to their country or as the immigrants that leave the given country to go back to their own one.

The independent variables will be the different push and pull factors that could affect the phenomenon of migration. From literature review we study a total of 22 determinants which we separate in financial/economic (15 factors), social (4 factors) and institutional/political (3 factors). We will not proceed to the study of environmental factors since immigration in European countries as well as the emigration and return migration phenomenon studied for the case of Greece and for the period 1990-2012 is not influenced by environmental factors as Cavounidis (2013), Arango (2013), Biagi et al. (2011) and King et al. (2012) analyse in their studies. As it will become clearer in the literature review that will

follow for each variable, the main factors that drives the phenomenon of migration in Europe and especially in Greece during the years 1990-2012 are financial and economic. However, some crucial social and institutional factors may play essential role in the complex process of migration especially during the crisis period, Ariu (2013), Biagi et al. (2011), Beets et al. (2009) Papatheodorou et al. (2013); Belot et al. (2011) who focus on the 7 social and institutional factors we will use.

All data for the dependent variables were found in the OECD's database (<https://data.oecd.org/>).

## 2.3. Financial/economic factors<sup>2</sup>

Some researchers, such as Featherstone (2011); Arghyrou and Kontonikas (2012), Lane (2012), offer detailed empirical investigations on the European economic crisis and concentrate their studies on this aspect, as euro zone's public finances appear to be in particularly poor situation. Especially the literature review on this subsection will focus on the economic variables that affect the phenomenon of migration in Europe during the crisis. Indeed, Reinhart and Rogoff (2010); Santis (2012) as well as Arleta and Hale (2008) suggest that a number of determinants need to receive a fair amount of attention in order to comprehend how these factors affected migration during the financial recession. We define below 15 financial/economic variables giving the unit measure, data for Greece for the last years, the maximum and minimum value for the latest year available.

### 2.3.1. GDP growth rate

Variable	GDP growth rate
Definition	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of

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<sup>2</sup> Indicators' definitions and information were found in the World Bank organization data site with latest examples (<http://data.worldbank.org/>). If not, different reference will be given.



	fabricated assets or for depletion and degradation of natural resources.
Unit measure	Annual %
Greece	-9.1 (2011); -7.3 (2012); -3.2 (2013); 0.7 (2014)
Maximum	10.3% for Turkmenistan (2014)
Minimum	-24.0% for Libya (2014)

As GDP growth rate is considered to be one of the most critical factors in an economy, a great variety of academic literature exists in order to explain its relationship with the public debt and migration especially within the European member states. Reinhart and Rogoff (2009), (2010) used a wide range of data of 44 countries crossing over two centuries of data on government debt and growth. The scholars indicated that not only across advanced countries, but also in emerging markets high public debt is associated with lower growth outcomes. Likewise, Checherita and Rother (2010) examine the experience of 12 European countries for a period of 40 years in order to concede the implications of government debt on GDP growth. Their main finding is that there exist some differences in the relationship between public debt and long-term growth. In Europe, for member states like Netherlands, Belgium and Spain, the public debt is followed by higher GDP growth, while in countries like Austria, France, Germany and Italy the higher the public debt is the lower GDP growth.

In addition, Reinhart and Rogoff (2009) developed also a new data panel that covered 8 centuries and 66 countries and they concluded that up to 90% ratio, the relationship between GDP growth rate and public debt is weak, but beyond this limit "growth suffers with median long term growth falling by one percentage point and average growth falling by more". Furthermore, Checherita and Rother (2010) using panel models variable and fixed effects models concluded that there is no linear relationship between public debt and GDP growth rate when the GDP is at a level of 90%. Nonetheless, the scholars indicate that this GDP growth rate can affect the public debt even if it exists in its lower point out 70%, something that can show that this impact may enclose the past years to GDP growth rate as it is higher than this level. Additionally, Kumar and Woo (2010) used 37- years data (1970 - 2007) in order to compare the obtained results for growing and developed countries. As a consequence, they showed that there was not a linear relationship between GDP growth rate and public debt.

Regarding now the impact of GDP growth rate to migration, Mc Donald and Temple (2010) imply that the phenomenon of migration has a significant influence on the growth rate of GDP. More specifically, they made a forecast, indicating that from 2013 to 2020 the GDP

growth rate in Australia, would be approximately 0.15% points higher with migration, while in 2040 the GDP growth rate would be 0.20% points higher with migration. In addition, according to neoclassical theory, migration increases the GDP growth rate by more than what it costs to employ the migrants, Munz et al, (2007), while empirical estimates suggest that more than the half of the GDP growth rate in OECD countries is derived from the human migration capital.

### 2.3.2. Public Government Bond Yields (10 years)<sup>3</sup>

Variable	10-Years Government Bond Yields
Definition	The rate of interest we expect to receive from the bond and it is calculated as a redemption yield, that means how much we would get if we held the bond to its end date.
Unit measure	(december) %
Greece	21.14 (2011); 13.33 (2012); 8.66 (2013); 8.42 (2014)
Maximum	2.77% for South Africa
Minimum	-4.28% for Greece

Government bond yields have received significant attention in the academic literature Calvo (1988), as they heightened influence of the public finances of an economy. Barrios et al, (2009); Blanchard et al, (2010); Hagen et al, (2011) consider this variable as a very important constant of their analysis in order to define various types of changes in the European framework. In addition, government bond yields started rising significantly in Europe, as they were used to examine the difference in the economic behaviour, such as the debt market, during the global financial crisis that has been intensified in September 2008. Sgherri and Zoli (2009) report that since the beginning of the current economic downturn, sovereign risk premium differentials in the euro zone have been widening. More specifically, the spreads on the yield on 10-year government bonds augmented in January 2009 for many European member states including also downgrades of sovereign debt ratings for three of the five PIIGS countries: Greece, Spain and Portugal. Accordingly, Kumar and Okimoto (2011) indicate in his study the effects of government bond yields in periods of ambiguity, when the public debt had a significant rise. The authors using a different range of data between 1980 -

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<sup>3</sup> Data taken from trading economic (<http://www.tradingeconomics.com/bonds>) and completed by the Economic Research of the Federal Reserve Bank of St. Louis (<https://research.stlouisfed.org/fred2/series/IRLTLT01GRM156N>).

2008 and a variety of factors that affect the financial behaviour of a country, found that as the public debt of a country increase significantly, then respectively this variation will be positively related with the aftermath on long run interest rates of government bonds since the default risk of a country increase, leading to an increase in the interest payment of investors.

Ardagna (2009) used data from the OECD countries for the period 1960 - 2002 and she found that 10- year government bond yields had an increase of more than 180 basis points during the years when the primary fiscal deficit widened by more than one and a half of GDP in 1 year. Cipolini et al, (2013) used a regression analysis including government bond returns of 14 European countries, between 1992-2010 and included periods before and after the composition of the EMU. The specific article focuses on the effects of the current financial downturn in Europe and on the impact of the formation of the EMU on the debt levels of some European countries. More specifically, the report indicated that as the exchange rate risk has been removed, there was a significant increase in the integration of debt markets within the EMU. Furthermore, the report imply that the correlation between the bond returns of the countries included in PIIGS and the German bonds have been significantly increased at the beginning of the creation of the EMU, while during the economic crisis they fall perilously.

Various studies focus their interest on the most important determinants that affect the government bond yield between the EMU countries during the global economic downturn that started in the mid 2007, Barrios et al, (2009). More specifically, the authors report that international risk factors such as general risk perception play a very important role in the default risks and in explaining government bond yields differentials. In addition, Eichler and Maltritz (2013) using a different approach in order to explore how various financial variables, such as GDP rate or economic growth, may affect default risk, employed data among 10 EMU member states during the period of 1999 - 2009. Finally, the outcomes of their study showed that a country's openness is positively related with default risk, while the determinant of the economic growth is conversely related to it in every bond yield maturity. Regarding the GDP levels, the study reveals that they affect the default risk only in the short run, while the net lending of specific member states is closely related to default risk only in long term maturities of government bond yields.

### 2.3.3. Inflation Rate

Variable	Inflation Rate (Consumer price)
Definition	The rate at which the general level of prices for goods and services is rising and subsequently, purchasing power is falling on a year-on-year basis.
Unit measure	(annual) %
Greece	3.3 (2011); 1.5 (2012); -0.9 (2013); -1.3 (2014); -1.7 (2015)
Maximum	48.7% for Ukraine (2015)
Minimum	-3.7% for Lebanon (2015)

Inflation rate in industrialized areas is a global phenomenon that may affect the economic activity of a country, Ciccarelli and Mojon (2008); Reinhart and Rogoff (2011); Bilbiie et al, (2012). A significant number of academic literature acknowledges the importance of this variable and indicates its impact on the economy. Firstly, Reinhart's and Rogoff's (2010) study, is based on data of 44 countries, concerning approximately 200 years, and includes a data set of over 3,700 annual observations covering a wide range of institutions, exchange rate arrangements and historical circumstances. Their main finding is that there is no possible coetaneous relationship between inflation rates and public debt levels for the advanced countries, such as EMU member states, while for the emerging markets the inflation fluctuations rise dramatically as public debt increases.

Further, Reinhart and Rogoff (2011) focus their newly developed research on inflation and the current economic crisis, by employing a long - term historical database, underlying debt cycles and banking crises. The major outcome of this study is that there is an apparent positive correlation between periods of higher indebtedness and inflation fluctuations. In addition Caporale and Kontonikas (2009) focus their study on the relationship between various types of inflation uncertainty and inflation rates in 12 EMU member states. From their analysis, which includes a long period of data between 1973 - 2007, it was obtained that during the specific period a lot of fluctuations and differences existed on the inflation trends across EMU countries. Also, another outcome shows that the period after the introduction of euro had a significant effect on the relationship between inflation uncertainty and inflation, where this link started to become less effective than in previous years.

Furthermore, Gregoriou et al, (2011) examine the time series properties of inflation differentials in 12 EMU countries that adopted the euro and the common monetary policy. The analysis was done by using a data set of 120 observations for each country between 1996

- 2005. The main result of the study shows that inflation misalignments are "non - stationary", but evidence was found that even though deviations of inflation from the European Central Bank (ECB) target can exhibit a region of non - stationary behaviour, in the long term they are stationary. Additionally, Meller and Nautz (2009) employed a panel estimation analysis in order to emphasize into a unique study regarding the level of fractional integration of inflation rates during the period of the creation of the EMU. However, despite the main objective of the report on the investigation of inflation determination in before and after EMU era, the authors made an effort to study the impact of the European Central Bank's monetary policy to influence the inflation rates of the EMU countries.

It was also obtained from the empirical analysis that after the introduction of euro, the EMU member states endure a convergence and a reduction in the persistence of inflation rates. Regarding the relationship of the phenomenon of migration with the inflation rates Barrell et al, (2007) indicate that there is a link in the short run on unemployment and inflation. According to the authors, this is because labour market equilibrium changes in the short run, because of the adjustment costs, that rise unemployment, descent pressure on salaries and consequently reduces inflation. Accordingly, Ordonez, (2007); Mumtaz and Surico (2011); Aggarwal et al, (2011) imply that there is a relationship between immigration and inflation rate fluctuations, as an increasing labour force augment growth potential, which therefore reduce the strong demand reassures to inflation. In addition, the author suggests that immigrants are more mobile than natives, something that results in the reduction of labour tightness and alleviate upward salaries and price adjustments. Thus, the higher mobility of immigrants' crosswise countries, the longer lasting expansions we can expect with more moderate impacts on inflation.

#### **2.3.4. Debt to GDP ratio<sup>4</sup>**

Variable	Debt to GDP ratio
Definition	Indicates the country's ability to pay back its debt. It is expressed as a percentage and it can be interpreted as the number of years needed to pay back debt if GDP is dedicated to debt repayment.

<sup>4</sup> Data taken from trading economic (<http://www.tradingeconomics.com/bonds>) and CIA the World Factbook (<https://www.cia.gov/library/publications/the-world-factbook/rankorder/2186rank.html>)

Unit measure	(annual) %
Greece	179%
Maximum	229.2% for Japan
Minimum	1.6% for Saudi Arabia

Even though scarce literature exists on debt to GDP ratio during the financial crisis this factor is of a great significance. According to Reinhart et al, (2012) the current economic recession has left a tradition of high and rising level of public indebtedness especially within the advanced economy of Europe. The authors, regarding the European central policy debate that focuses on how fast may stabilize the elevated debt to GDP ratio, aim to study the issue by identifying the most significant debt "overhang" in Europe since the early 1800s.

An analysis, by using long - dated cross-country data on public debt that has been developed by Reinhart and Rogoff (2010) was employed in order to observe the growth and interest rates related with episodes where debt to GDP ratio exceeded 90% for at least 5 years. The authors concerning the period of 1800 - 2011 found 26 such episodes among the advanced economies, while 20 of them lasted more than a decade. The major finding is that such episodes, which are associated with debt to GDP ratio, are related with lower growth than during other periods. In addition, the long duration gates the view that the correlation is caused by debt to GDP ratio build-ups during business cycle downturns.

Checherita and Rother (2010) focus their research on investigating the impact of government debt on debt to GDP ratio in 12 EMU countries, regarding a period over 40 years, starting in 1970. Basically, the analysis is panel fixed - effects corrected for heteroskedasticity and autocorrelation. Additionally, the authors employed different instrumental variable estimation techniques. The major outcome of this study is that the government debt has a destructive effect on long-term growth at approximately 90% of debt to GDP. Another observation showed that the annual change of the government debt ratio and the GDP ratio are negatively and linearly related with GDP growth.

Furthermore, Candelon and Palm (2010) used the balance sheet approach in order to show the potential relationship between the banking and the debt crisis in Europe. Apart from this aim of the report, the authors emphasized on the association between stock market losses and debt to GDP ratio. A positive relationship can be detected between these two variables, as the authors denote that countries that face the highest stock market losses, experience the highest debt to GDP ratio and the highest risk premium. Candelon and Palm (2010) imply

that it is logical to explain this link with a wealth effect "a decrease in stock market index leads to a negative wealth shock, having a negative impact on demand, implying a decline in fiscal income and thus a degradation of the debt stock relative to the GDP" augmented by a decline in output.

### 2.3.5. Central Government Debt

Variable	Central Government Debt, total
Definition	The entire stock of direct government fixed term contractual obligations to others, outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. As it is a stock it is measured as of a given date, the last day of the fiscal year.
Unit measure	% of GDP
Greece	111.1 (2011); 165.5 (2012); 181.9 (2013)
Maximum	201.1% for Japan (2013)
Minimum	0.6% for Estonia (2013)

Central Government debt is another significant factor, which has a great influence in the economy. Reinhart and Rogoff (2010) as abovementioned employed for their analysis a dataset on 44 countries that assimilates over 3500 annual observations. They revealed that the association between central government debt and the GDP growth is weak for debt to GDP ratios below a threshold of 90% of GDP. In addition, the authors obtained that the threshold for central government debt is similar in advanced and emerging economies.

Furthermore, Jaimovich and Panizza (2010) used a dataset that included complete series of central government debt for 89 countries, including all the most important economies, apart from Eastern Europe. The dataset has a full coverage of central government debt for the period between 1995 - 2005. Additionally, the authors comprised a second group including 7 tradition countries with a full coverage of central government debt for a time period from 1993 to 2005. Finally, for their third group they employed data for 44 small economically countries that have an incomplete coverage from 1970 until 2003. The major outcome of their study is when compared with high industrial countries; emerging markets have higher levels of central government debt. Developing countries such as Sub - Saharan Africa have the highest levels of central government debt, while Europe has the lowest.

Finally, another study by Merler and Ferrie (2012) shows that domestic banks keep on their balance sheets an important share of central government debt. The authors, by employing data by national sources of the main euro area countries proved that banks in specific EMU member states have traditionally resolve a larger share of central government debt than in the United Kingdom and the USA. Furthermore, another significant finding is that according to the authors, by reducing the share of central government debt, held by domestic banks will consequently help to reduce sovereign vulnerability in the euro area.

### **2.3.6. Imports of goods and services**

Variable	Imports of goods and services
Definition	Imports of goods are goods that add to the stock of material resources of a country by entering its economic territory. Data are in current U.S. dollars.
Unit measure	BoP, current Million US\$
Greece	102,077 (2011); 76,719 (2012); 88,813 (2013); 90,488 (2014)
Maximum	3,436,894 for US (2014)
Minimum	173 for Kiribati (2014)

Ever since the international financial crisis hit significantly the region of the Southern Europe and of the Western Balkans in the second half of 2007, the global trade had severely affected these specific countries, Bastian (2011). The author implies that the dramatic decline in imports of goods have refocused the countries' path from crisis to recovery. Nonetheless, the recovery according to Anastasakis et al (2011) is "fragile and uneven", something that resulted in a sharper fall of imports than exports especially in countries such as Serbia and Montenegro and PIGS, which had registered confounding levels of above 20%.

Regarding the economic recession and its impact on the international trade, Abiad et al., (2011) and Baldwin (2010) indicate that financial downturns are followed by large declines in output and employment, something that consequently affects the social cohesion of the country. Furthermore, Choudhry et al., (2014) support that periods of economic crises are characterized by high exchange rate volatility, which affects significantly the trade flows. In particular, Abiad et al (2011) report on their study which includes data from 153 economies during the period 1970 – 2009, that exchange rate volatility is one of the most important variables that affect imports of goods. Accordingly, Fratzscher (2009); imply that the recent economic downturn developed highly volatile movements internationally, something that affected imports and exports within foreign trade markets.



Hence, Ahn et al (2011) suggest that exchange rate volatility has a significant impact on imports flows and provide evidence that financial factors affect the international trade. Additionally, Behrens et al (2010) argue that there is a strong linkage between imports of goods and GDP, while Eaton et al (2011) employed an 80% solution by using a more elaborate equilibrium model and show that finance based factors such as GDP affect the world trade. Nonetheless, Levchenko et al., (2010) indicate that automobile imports even during the crisis experienced a rise in import prices and is more consistent with Haddad et al (2010) who suggest that imports of goods in the USA and the EU during the crisis had an incline in these regions.

Behrens et al., (2010) on their analysis of the 2008 – 2009 trade collapse in which employed micro data from Belgium found that the most significant factor that can explain changes in imports and exports of goods is growth of GDP. Specifically, the recent economic recession that deteriorated significantly the GDP growth of especially Southern European countries provoked consequently a dramatic decrease of imports of goods and simultaneously a persistent decline in employment, which led to a severe and prolonged migration in searching of better employment circumstances. Consistently, Kovac and Kovac (2013) analyze the impact of global trade of goods in Croatia from 2001 to 2010 and show contribution of GDP growth on imports of goods. Moreover, the authors sustain that especially during the economic crisis a fall in foreign trade of goods resulted to lower development and competitiveness, something that consequently had a positive contribution to the phenomenon of migration to more prosperous countries with more competitive markets.

Considering Greece, the international economic crisis has affected dramatically the country. According to Lekakis and Kousis (2013) the high public debt of the country could not offer development and positive GDP growth; therefore it would be very difficult for Greece to succeed an augment to the trade of goods, which would help country exit the recession. In particular, between 2003 and 2008, Greece and Albania were the most important trading sources in the area. Concerning bilateral trade volumes, Anastasakis et al., (2011) indicate that merchandise trade with Greece reached 9% of exports and 15% of Albanian imports. Nevertheless, on the beginning of the financial crisis in Greece, GDP growth started to decline, something that consequently led to a fall of the trading shores between both countries and led to low wage growth and unemployment Carlin and Soskice (2010) while the combination of these two resulted in rise of Greek natives migration.

### 2.3.7. Exports of goods and services

Variable	Exports of goods and services
Definition	Represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.
Unit measure	% of GDP
Greece	25.5 (2011); 28.7 (2012); 30.6 (2013); 32.7 (2014)
Maximum	219.6 for Hong Kong SAR, China (2014)
Minimum	6.1 for Sudan (2014)

In the European Monetary Union area, the financial recession built up economic imbalances as a great number of capital flows moved from Northern to Southern regions of Europe Gros (2012). Particularly, in Greece, massive foreign capital was used in order to cover the finance consumption during the crisis. Alcidi and Gros (2011); Gros (2011); Holinski et al., (2012) support that as the expansion in domestic demand financed by the capital inflows the Southern European countries and especially Greece, lost gradually its competitiveness, which consequently resulted to a drop of the level of exports of goods, which inevitably led to financial imbalances in the country, lower domestic demand and lower GDP.

An important number of the academic literature acknowledges the meaning of this variable and indicate its impact on the economy. Gros (2012) study is based on data of two country – groups, the North Euro zone and the South Euro zone and their account balances over the period 2000 – 2010. His main finding is that during the crisis there is a positive relation between the levels of exports of goods and the competitiveness of a country, something that unavoidably results in excessive economic imbalances and lower wage costs. Hence, this economic situation implies deterioration in the social cohesion of the country with the vast majority of the natives decide to migrate to more prosperous areas.

Further, Malliaropoulos (2010) focus his research on the correlation of competitiveness of the Greek economy during the financial recession and the exports of goods and services in Greece. Specifically, the major outcome of this study is that during the economic crisis in Greece, the loss in competitiveness in the country, provoke relatively wage costs, something that results in deterioration of the exports of goods. Hence, as the export sector witness a decline in competitiveness, Greek economy diminishes, provoking

worsening on structural reforms of the society with low rates of innovation and productivity. Thus, a great number of Greek nationals decided to emigrate in order to improve their lives in less affected by the recession areas.

In addition, Baldwin et al (2010) suggest that one of the main competitiveness indicators that can predict economic growth is exports of goods and especially during the financial recession. Specifically, in Southern Europe, loss of competitiveness led automatically to lower exports and lower market shares. As a result, this competitiveness' deterioration obviously provokes many social problems that affect the coherence of the society and influence natives' decision to emigrate. Also, Lamo et al., (2008) in their empirical study find that there is a significant relationship between loss of competitiveness and lower exports of goods. In particular, they indicate that the most standard consequence of competitiveness descent, is lower rates of exports of goods especially in high uncompetitive economies, such as Greece, Portugal and Italy, but at the rest of the 27 EU countries, the results are essentially flat and not downwards sloping.

Furthermore, Bank of Greece (Bank of Greece. 2014) in its report indicates that competitiveness of the Greek service sector influence goods exports, during the economic recession. Particularly as Greece main competitive sector is tourism, especially in relation with periphery countries such as Spain and Italy, or emerging ones such as Turkey, which are regions that due to the crisis they suffer from wage inflation and high price, there is a loss in competitiveness with implication in exports of goods. It was also concluded from the study of Feldstein (2012), where they examined economic and financial indicators, that the introduction of Euro in 1999, created difficult economic consequences that resulted in the sovereign debt in Europe. Regarding the relationship of Greek competitiveness the author suggests that the financial downturn in Greece aggravate a rising account deficit that affect Greek productivity, causing the prices of goods to rise. Consequently, this causes Greek imports to rise and exports to decline, creating at the same time a large trade deficit. As a result, a decrease in Greek competitiveness makes Greek exports less attractive to the markets, something that decreases Greek GDP growth and rates of employment. Thus, higher rates of unemployment leads to larger migration levels from Greek natives towards foreign countries.

### 2.3.8. Cash surplus

Variable	Cash surplus / Deficit
Definition	The amount of an asset or resource that exceeds the portion that is utilized. A surplus is used to describe many excess assets including income, profits, capital and goods.
Unit measure	% of GDP
Greece	-9.2 (2011); -8.2 (2012); -14.6 (2013)
Maximum	11.6 for Norway (2013)
Minimum	-14.6 for Greece (2013)

Cash surplus is one of the most important determinants in a country's economy, thus during recent years there has been a growing literature that explains its relationship with the public debt and the phenomenon of migration in Europe and especially in Greece. Sotomayor and Cadenillas (2011) used a dividend payment model with regime switching, as they imply that cash reservoir, that means cash surplus or deficit, depends on the regime of the economy. The scholars obtained the first analytical solutions for the optimal dividend policy and indicated that a country's cash reservoir is strongly correlated with long economic conditions. Particularly they suggest that country's cash flows during periods of uncertainty, such as Greece during the economic recession, vary according to public debt. Likewise Cadellinas et al (2007) examining a model by a standard Brownian motion, suggest that there is evidence that a country's surplus or deficit is strongly affected by overall financial movements, such as public debt rates. Furthermore, Driffill (2010) reports that country's cash surplus changes within an economic crisis, something that consequently influences tax rates, wage payments and motivate people's decision to migrate.

In addition, Brauninger and Majowski (2011) developed a report in PIIGS with meticulous emphasis in Greece, included an estimation model that shows the imbalances on the cash reservoirs, during the financial recession. Specifically, during the recent economic crisis the cash reservoir in Greece shows decline rates as overall income movements are influenced by financial conditions. As a result, tax rates and unemployment figures escalated at record heights and Greece became unable to satisfy its natives' labour needs. Indeed, current economic downturn has had a strong impact on country's reservoir; cash deficit showed the highest rates in 2009 and 2010, with 15.6% and 10.6% respectively Brauninger, and Majowski (2011).

Consequently, due to the economic recession, stabilization has not reached the

country, thus, a great number of Greek citizens decided to emigrate in order to avoid high unemployment rates. As a result, the report shows a linear relationship among cash surplus, public debt and emigration.

### **2.3.9. Foreign direct investment net inflows**

Variable	Foreign direct investment net inflows
Definition	A passive investment in the securities of another country such as public stocks and bonds, by the element of control.
Unit measure	BoP, current million US\$
Greece	725.321 (2011); -984.864 (2012); -3,643.183 (2013); -780.985 (2014)
Maximum	289,097 for China (2014)
Minimum	-20,097 for Belgium (2014)

According to Buchanan et al., (2012) foreign direct investment is a worldwide phenomenon and is implicit to be a very important antecedent to financial development. Specifically, Ju and Wei (2007) indicate that cross – border capital flows had a significant incline at a rate of approximately 6% a year since 1980, something that was faster than those of the world’s trade and GDP. Along with Pirvu and Cojocaru (2013) the creation of a United European market in the 1960s was a key factor for rising the role of the European Union as a source and destination for global foreign direct investment. By the mid-1970s the USA was the largest source of FDI, but after the creation of the European Economic Community, Europe occupied the first position.

From the mid 2007 the world economy suffered the deepest financial recession since World War II. The vast majority of the countries around the globe and especially the European ones witnessed significant decline in employment trade and output. According to Alfaro and Chen (2010), GDP in industrial countries showed a decline of 4.5% in 2008, while unemployment rate ascended to 9% across OECD countries. As a consequence, the performance of foreign direct investment fell by 4.6% in 2008, compared with the 24% growth rate in 2007 (UNCTAD. 2009). Thus, the current financial recession has showed that under some unfavorable conditions, capital flows, such as FDI between regions may lead to severe destabilization of their economies, (Thalassinos 2008).

During the main years of the financial crisis (2009 – now) there has been a sharp reduction in inflows of foreign direct investment, which has hit harder especially the

countries of Southern Europe and Western Balkans. In particular, in Bulgaria, Croatia and PIIGS, the inflows of FDI fell sharply as a consequence of the financial downturn, as were the countries with the highest pre – crisis per capita inflows. This occurs as there are countries that do not have adequate national savings, in order to support financial development and thus make efforts to meet the deficit by foreign resources, Mucuk and Demirsei (2013).

Despite its prevalence, the literature finds only weak support for positive effect of FDI on economic growth of a country. Buchanan et al., (2012) suggest financial recession brings to the fore weakness in social infrastructure, which include low competitiveness, low trade and investment rates and job losses. Although within these open economies it is expected that unemployment rate will decrease as a result of foreign direct investments, Mucuk and Demirsei (2013), nonetheless, these acquisitions result according to, Craigwell (2006) in rationalization and job losses. Accordingly, Craigwell (2006) who examined the relationship between FDI and employment during the period 1990 -2000 in 20 English and Dutch speaking Caribbean regions, found an insignificant effect of the FDI on the demand for employment. Likewise, Aktar and Ozturk (2009) in their research in which they applied VAR methodology, in order to investigate several effects of FDI for the period 2000 – 2007, when the crisis started to occur in mid 2007, they found that FDI did not have any contribution to diminish unemployment rate in Turkey. Also, Hisarciklilar et al (2009) in the study for Turkish economy indicated that FDI inflows did not increase employment.

On the Greek case Dritsaki et al., (2004) suggest that the effect of foreign direct investments in the economic growth of the country has an unidirectional causal relationship with GDP and employment. Thus, even though the FDI had in Greece a significant attraction during the financial recession, nonetheless unemployment has sustained in high levels especially among young native workers Featherstone (2011) who started searching for an employment abroad.

Even though Greece has been severely affected by the recent economic recession, the country's performance in attracting foreign investments was very satisfactory in 2013 compared with the previous year, Prica and Barlett (2012). Specifically, according to Bank of Greece (2014) total gross inflows in Greece for 2013 amounted to 3.3 billion Euros, which is an increase of 63.6% compared to 2012, while net inflows amounted 1.9 billion Euros and

recorded also significant increase of 43% compared to 2012, demonstrating stabilizing trends despite the harsh economic crisis. Consequently, it would be of great interest to study this parameter in our case and compare it with the conclusions of Bank of Greece study.

### **2.3.10. GDP per capita**

Variable	GDP per capita
Definition	A measure of the total output of a country that takes the gross domestic product (GDP) and divides it by the number of people in the country.
Unit measure	Constant 2011 international \$
Greece	26,626 (2011); 24,816 (2012); 24,198 (2013); 24,570 (2014)
Maximum	134,182 for Qatar (2014)
Minimum	567 for Central African Republic (2014)

Economic fluctuations are defined as sequential variations of financial activity within an economy, often referred as economic cycles. The phase of economic recession is one of the two economic fluctuations and particularly the phase of descent, when the economic activity is on a continuous reduction OECD (2013).

The global economy faced the biggest and the most severe financial recession since the 1930s. Since the mid 2007, the global community experienced an intensive economic downturn which even though started initially in the USA, soon spread rapidly in developed countries of the rest of the world, with dramatic effects especially on the Southern European countries. As the financial crisis is the phenomenon during which an economy is characterized by a continuous and severe deterioration of economic activity, all the macroeconomic figures, including employment investments and GDP per capita are affected negatively Koufaris (2010). The World Bank defines GDP per capita as “the gross domestic product divided by midyear population”. According to European Commission (European Commission. 2009) the most significant index of the financial activity is GDP per capita, which when fluctuates, entrains the rest of the figures.

The financial crisis after the second semester of 2007 in the USA, soon took epidemic proportion with dramatic consequences to the banking system and the enterprises. According to IMF, the recession conveyed severely into the real economy something that resulted to the recession of the GDP per capita and the rise of unemployment. GDP per capita reduction, which in the meantime marked negative growth across Europe, resulted in a further decrease

of the international economy and the rapid incline of the redundancies. In particular, Pasiouras (2012) indicates that the increase of the global GDP has been suddenly moderated to 3.2% in 2008 from 5.2% that was in 2007, while faced another fall of 1.1% in 2009. As a result, the unemployment rate rose dramatically and changed the social background of the world. Specifically in Europe the severe fall of the GDP and the increase of unemployment led many natives to abandon their countries and migrate to improve their lives.

According to Choudhry et al (2014) the recent economic crisis that led to the biggest recession since the Great Depression of the 1930s provoked severe consequences on economic performance especially of the Southern European countries. In particular, they support that the crisis affected negatively the GDP per capita, which resulted consequently in lower rates of production, income and employment. On their study in which they employed fixed effects panel estimations on a large panel of countries (approximately 70) across the world for the period 1980 – 2005 and 2007 – 2008 found that high GDP per capita in an economy helps to reduce unemployment. Bell and Blanchflower (2009) suggest that the financial downturn had a deep impact on the economic figures, especially on the GDP per capita, of the countries that have been affected by the crisis, with important implications on the labour market. Accordingly, Arpaia and Curci (2010a) suggest that in Europe unemployment rates rose dramatically after the global economic crisis which decrease basic figures of the economy, such as GDP per capita.

In addition, Scarpetta et al (2010) underline that the recent crisis aggravated a great number of structural problems that affected the social cohesion of countries. Specifically they implied that not only during but also after the crisis, the decline of GDP per capita led to a reduction of labour demand especially among young workers that decide to leave their home countries in order to migrate and seek for a better future. In addition, Quintini and Manfredi (2009) indicate that the crisis pushed many people, especially young ones, to decide to emigrate in order to gain new employment prospects. Furthermore, OECD (2013) sustain that the crisis that spread rapidly from the USA to Europe led to high unemployment rates, while the vast majority of member states of the EU suffered from a GDP contraction of 4.2% in 2009. Fitoussi and Stiglitz (2010); Barba and Pivetti (2009) suggest that since the countries' GDP has decreased, consequently the unemployment rates will be higher. According to the authors low levels of consumption and private investment and lack of trust in the financial markets, also compound this fact.



As EU member states have been significantly affected by the crisis, they faced also lower GDP rates and thus high rates of unemployment. Even though in some countries such as Poland, Malta, Austria, Germany and Luxemburg experienced higher GDP per capita growth and not as severe unemployment, nonetheless, in countries such as Estonia, Lithuania and PIGS, where GDP growth experienced negative performance, unemployment increased significantly. Specifically, in Southern European countries, especially Greece, Italy, Portugal and Spain, the financial recession was deeper, provoking simultaneously structural problems, such as low productivity, high unemployment rate and high levels of public debt that led to lower growth of GDP.

In particular, Charles (2008) indicate that the economic crisis in Greece is the result of two negative factors, which are high public debt and high deficit that led to continuous deterioration of microeconomic factors of the economic especially the one of GDP. In addition, in October 2009 the Minister of Finance, Mr. George Papakonstantinou announced Greece's budget deficit to ECOFIN from 6% to 12.7% of GDP. As a result, unemployment rate increased significantly from 14.8% in March 2011 to 22.6% in August of 2012. Consequently according to Eurostat (Eurostat. 2013) Greek population ended up living below poverty line, with the vast majority of them to decide to migrate in order to improve the quality of their life. Accordingly, Koutsampelas and Tsaklioglou (2013) on their study regarding the distribution of income in Greece, indicate that the recent financial crisis had severe implications on the growth of GDP per capita, something that resulted in significant wage cuts and higher unemployment rates.

Finally, Matsaganis and Leventi (2013) on their study on the distributional impact of the financial crisis in Greece, suggest that the recent downturn had severe financial and social impacts on Greek population. Specifically, the weakness of the Greek economy became profound with the decrease of GDP (-3.2%) in 2009, while employment earnings declined and unemployment rose. Thus, Lee and Hsieh, (2013) indicates that lower GDP per capita provokes serious social consequences for economy. In the case of Greece, the recent financial downturn led to dramatic decrease of important economic factors of the country, such as GDP per capita and aggravated declines in welfare, while shove large parts of the Greek population to live under poverty line and thus they decided to consider emigration as the only solution to escape from the adverse effects of the crisis.

### 2.3.11. Bank capital to assets ratio

Variable	Bank capital to assets ratio
Definition	Represents the net worth of the bank or its value to investors. The asset portion of a bank's capital includes cash, government securities and interest-earning loans like mortgages, letters of credit and inter-bank loans. The liabilities section of a bank's capital includes loan-loss reserves and any debt it owes.
Unit measure	%
Greece	5.8 (2012); 7.5 (2013); 8.1 (2014); 7.7 (2015)
Maximum	20.7 for Serbia (2014)
Minimum	3.3 for Cameroun (2014)

A bank's capital can be considered as the margin to which creditors are covered if a bank liquidates its assets. The recent international economic crisis has given ascend to the largest wave of banking crisis since the great depression Laevan and Valencia (2013). The authors indicate that the current financial downturn is by far the most dramatic one, and has severely affected generally advanced economies. On their study in which they employed a database with information during the period from 1970 -2011, they found that advanced economies are keener to experience larger output losses than developing countries due to banking recessions, something that lead to deep asset market downfalls and declines in employment. Accordingly, Kroszner et al., (2007) imply that advanced economies experience larger increases in public debt than emerging economies, something that is linked with a greater use of countercyclical fiscal policy. Additionally, the authors point out that this bank capital decrease results in a wage cut and a slowing down of employment rate.

Moreover, Kunt et al., (2010) on their study in which they employed a sample of 381 banks in 12 economies during 2005 – 2009, they indicate that banks before the recession did not affect significantly stock returns. Nonetheless, they imply that the effect is more evident during the economic downturn and they show that there is a positive relationship between bank risk and bank capital. Furthermore, although a number of economic theorists support that bank capital is a very important tool to limit risk in banking Fama and French (1992); Kent and Titman, (2006) and more capital makes banks better able to absorb losses, nonetheless, during the recent economic crisis, banks failed to rescue bank capital and collapse Vinals et al., (2010). As a result, the period during the financial turmoil has been characterized by surge in government debt and a rise in unemployment rate.

In addition, Beltratti and Stulz (2012) on their study, in which they use a sample of 503 institutions, imply that during the recent economic crisis, stronger regulations for bank capitals have been taken in order to prevent higher capital risk. Accordingly, Cornett et al (2011) indicate that as banks obstructed capital, they are exposed to the risks that turned out due to the poor financial conditions. As a result, economic growth is weaker something that affects the economic and social cohesion of a country due to limited employment access and elevated wage cuts, which lead to persistent inclines of native emigration abroad. Furthermore, Berger and Bouwman (2013) suggest that within banking crisis, bank capital may help small banks to rise their survival possibility, while enclashes at the same time the performance at medium and large institutions. As a result, more bank capital has a greater impact on bank performance not only during normal times but also during financial crisis and thus has a significant effect on a bank's survival and consequently on the economic growth of the country. Accordingly, Kashyap et al, (2008); Bis (2010); Acharya et al., (2013); Calomiris (2012) imply that higher bank capital is a safety net provided to banks in order to operate more efficiently especially during financial crisis and thus improve the economic and social competence of a country. Consistently, Allen et al., (2011); Mehran and Thakor (2011) support that higher capital banks are more able to compete deposits and high loans during an economic recession and succeed a higher likelihood of financial survival of the country.

Regarding Greece which experienced dramatic financial problems during the recent economic recession, Mink and De Haan (2013) support that as a failure of the banking system occurred, the country was obliged to accept bilateral loans in order to avoid a further economic disaster and a possibility to spread out a new banking crisis in the EU. Moreover, the impact of the financial downturn in Greek society and economy was high. According to Davies and Ng (2011) banking crisis in Greece deteriorated its sovereign creditworthiness, increased in its sovereign risk and weakened its balance sheets. As a result, Greek banks that have a significant exposure to the Greek government and consequently provoke a severe effect on the cohesion of the country, as the economic growth started to decrease significantly, affecting simultaneously the employment rates of the country. Consequently, in view of a larger exposure to the banking crisis, a great number of Greek natives decided to emigrate and seek for a better future abroad.

### 2.3.12. Lending interest

Variable	Bank capital to assets ratio
Definition	It is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing. The terms and conditions attached to these rates differ by country, however, limiting their comparability.
Unit measure	%
Greece	27.6 (1990); 12.3 (2000)
Maximum	60.0 for Madagascar (2014)
Minimum	0.5 for UK (2014)

The recent economic recession has a significant effect on the banking sector of the vast majority of the developed countries and has dramatically weakened the functioning of interbank markets Maddaloni and Peydro (2009). Acharya and Richardson (2009); Allen and Carletti (2009) and Diamond and Rajan (Diamond. and Rajan 2009) imply that two of the most severe consequences of the economic crisis are high securitization activity and weak banking supervision standards, something that lead in more loan risk – taken by banks. Moreover, Casey and O’Toole (2014) on their study, in which they employed euro area firm level data since the recent economic downturn, show that credit – rationed firms are more likely to use trade credit, while constrained firms have more possibilities to use informal lending.

Accordingly, Popov and Udell (2012); Jimenez et al (2012); Campello et al (2010b); Artola and Genre (2011); Ferrando and Griesshaber (2014) discuss the determinants and the impacts of bank lending on individuals and firms since the beginning of the recession. Furthermore, Brei and Schclarek (2015) indicate that since the onset of the international economic crisis the balance sheets of banks have incessantly come under stress. The authors document that public banks during the recession provided more loans, compared to private banks that cut down lending and increase lending interest and liquidity holdings. Consistently, they suggest that due to the financial crisis the freezing of moral markets, and the associated fall in bank capital have resulted to less deposit in bank institutions, liquidity and a rise in lending interests especially in Europe.

Accordingly, Mehrling (2011) supports that banks during the recession acted as lenders of last resort, something that had severe risks either on cut back in lending interest,

provoking so difficulties in the payout. In addition, Ivashina and Scharfstein (2010) indicate that as the banking panic of 2008 elevate concerns about the liquidity of the bank institutions and show that financial institutions were more vulnerable to credit – line drawdowns accelerating lending volume. As a consequence, small and medium firms, as well as individuals found it difficult to face the effect of the unexpected recession that included wage cuts and rise in lending interest, and thus lost their ability to payout their loans. As a result, they experienced the loss of their property and decided to emigrate in order to seek for a better future abroad. These findings are consistent with Brei and Schclarek (2015) who suggest that during the recession, housing loans and toxic assets started to explode, as banks had liquidity problems, thus the fiscal authorities have implemented rescue programs including higher interest rates and debt guarantees, Brei and Schclarek (2014).

Accordingly, in Greece, due to the deep recession, firms stopped paying and started making redundancies, Spyrou and Kassimatis (2009). As a result, individuals remained without an income and consequently without an ability to repay their loans. These loans called “subprime” and were the first that collapsed, provoking a dramatic domino effects in financial market. Furthermore, Papatheodorou and Dafermos (2013) indicate that during the economic recession, people experienced inability to payout their loans due to their financial insufficiency, as the lending interest had a dramatic rise. Consequently, the financial situation in Southern Europe and especially in Greece appeared vulnerable with increasingly high unemployment rate, lower wages and pensions, inability from banks to fund individuals and small/medium firms, as they experienced decrease on their deposit, something that led to higher lending interests. Hence, Greek natives decided to leave their country in order to escape from uncertainty and risk.

### **2.3.13. Total Reserves**

Variable	Total reserves (includes Gold)
Definition	Total reserves are the assets that a bank has immediately available to cover its liabilities. Total reserves count against the bank's reserve requirements.
Unit measure	Current Million US\$
Greece	6,743 (2012); 7,255 (2013); 5,763 (2014)
Maximum	3,900,039 for China (2014)
Minimum	63 for Sao Tome and Principe (2014)

According to World Bank orientation, total reserves constitute holdings of monetary

gold, special drawing right and holdings of foreign exchange under the control of monetary authorities. A domain feature of the recent financial crisis that blow up in 2008, is the growth of inequality and imbalances within and between countries Seguino (2010), while the recent recession is well notable for a number of reasons, including most apparently its severity and speed Rose and Spiegel (2009). Therefore, in November 2008, the G20 group of nations asked IMF to provide early warnings of the indicators that need to be addressed in order countries to avoid the prior wave of crisis Frankel and Saravelos (2011). According to the scholars, countries that are more vulnerable to the financial crisis are these that experience higher output drops, larger stock market falls and larger losses in total reserves, something that leads consequently to greater currency and financial weakness.

Particularly in Greece, the current sovereign crisis resolved as a coaction between market pressure on the exchange rate and the depletion of total reserves Azariadis (2011); Christodoulakis (2010). Lazaretou (2009); support that collapse was bound to occur in the Greek economy as the total reserves were drained. Specifically, according to World Bank data (World Bank. 2013), Greece during the 1990's and some years before the outbreak of the crisis, used to experience high rates of total reserves. On the other hand since 2008, when the economic crisis was underway, the amount of total reserves started to decline with minimum rates in 2008 with 4,313,657,904.

An important number of the academic literature accepts the significance of this variable and support its effect on the economy. Frankel and Saravelos (2011) in their cross – country study investigated the leading indicators that have proven the most fruitful in explaining the 2008 financial crisis. They suggest that the level of reserves is in line with variables' relationship with the recession. Hence, the devaluation of total reserves results in economic imbalances and extensive destruction of employment and sustenance, with immediate results in deterioration of the social cohesion of countries. As a result, the crisis provided the opportunity to existing migrants to rethink their connection with their home countries in order to avoid the future disproportionally harming Cholewinski and Taran (2009).

Further, Dominguez et al, (2012) focus their research on whether reserve accumulation policies affected the financial performance of the countries hit by the global crisis. Specifically, the main outcome of their study is that countries with high levels of debt,

such as Greece, Portugal and Italy, were hard hit by the crisis and thus experienced large losses of their total reserves. In addition, the scholars support that emerging market economies as for instance, the Southern ones with low total reserves increased their probability of falling into the recent recession and regain the pre – crisis growth and competitiveness.

Hence, as the slowdowns of total growth contributed to substantial increases in unemployment and imbalances of payments and as the migrants' community is far more vulnerable than the natives, a great number of immigrant workers decided to seek for work opportunities back home.

### **2.3.14. Market Capitalization**

Variable	Market Capitalization
Definition	Is the total market value of the shares outstanding of a publicly traded company; it is equal to the share price times the number of shares outstanding.
Unit measure	% of GDP
Greece	11.7 (2012); 18.3 (2013); 34.5 (2014); 23.4 (2015)
Maximum	1,111.4 for Hong Kong SAR, China (2014)
Minimum	10.5 for Hungary (2014)

The economic crisis the global community experienced and first broke out in the US in the mid 2007, had caused long – lasting damage in developed countries of the rest of the world, with devastating impacts particularly on the Southern European region. On October of 2007, the total market value of listed companies around the world was approximately \$63 trillion, while by the beginning of March 2009 the value dropped more than half to \$28.6 trillion Munnell et al., (2009). This deficit effect will take very long time to replenish, especially in the Mediterranean countries that had been hit severely by the recession. As the financial crisis is a phenomenon during which economy is characterized by continuous imbalances, all the macroeconomic figures, including employment, investments, GDP, market capitalization were affected negatively Koufaris (2010).

According to Nkovo and Uko (2012) the recent financial crisis had a contagious effect with dramatic consequences to the economic and social cohesion of the countries hit by the recession, with severe impacts on several financial indicators such as commodity prices,

market capitalization, exchange rate and trade flows. Naude (2009) support that financial crisis means a sudden alteration in the financial stability of a country, in which a great number of its financial institutions loose a large part of their assets, something that results in a slow down of economic development and provoke severe consequences on the economic performance of the country. In particular, World Bank (World Bank. 2013) indicate that in Southern European countries and especially Greece, where the crisis hit severely, the market capitalization was \$83 million in 2007, while fell to \$25.5 million in 2008. As the Greek economy was at risk from the effects of the financial crisis, due to the country's high vulnerability to financial shocks, this led to significant rise of unemployment and inflation and changed dramatically the social background of the country Nezi (2012); Pasiouras (2012).

Specifically, Seguino (2010) suggests that the increase of unemployment and the devastating austerity measures had strong impacts not only to natives who decided to abandon their country and migrate, but further to the existing immigrant workers who suffered by the impact of the crisis and considered to return to their home areas as a solution to avoid additional vulnerability. Accordingly, the World Bank (World Bank. 2013); Choudhry et al., (Choudhry et al. 2014) indicate that the contagion and the interdependence of the economic recession affected significantly the financial markets. The Athens Stock Exchange index in particular and the market capitalization of listed companies show a development over the years from 1999 with \$142 million to \$83 million in 2007 and fell in \$11.7 million in 2011. As a result, this meltdown of the market capitalization provoked massive withdrawal of foreign investments, which induced harsh consequences on Greek financial and social system.

In addition, International Labour Office (2008); Scarpetta et al., (2010) suggest that the loss of the foreign investments in a country due to the recent economic downturn irritated several problems, which affected the social cohesion of countries. Specifically, they implied that the employment crisis was aggregated by the recent financial crisis, while Fitoussi and Stiglitz (2009) imply that low levels of consumption and private investment and lack of trust in the financial markets also compound this fact.

Consequently, the Southern European countries, especially Greece, which was the most vulnerable by the crisis, the market capitalization of listed companies had a significant



decline something that created an unfavourable investor sentiment. This resulted in rough financial instability, severe recession within the country with development vulnerable to reversals. Therefore, alongside the Greek native population who decided to abandon its country and migrate in order to improve the quality of its life Eurostat (Eurostat. 2013) there is evidence that a great number of unemployed immigrants rethink the solution of return to their home regions in order to pursue higher wages and more benefits.

### **2.3.15. Tax Revenue**

Variable	Tax revenue
Definition	It forms part of the Receipt Budget, which in turn is a part of the Annual Financial Statement of the Union Budget.
Unit measure	% of GDP
Greece	21.7 (2012); 22.9 (2013); 22.8 (2014)
Maximum	35.1 for Denmark (2013)
Minimum	0.4 for the United Arab Emirates (2013)

The financial crisis in the Mediterranean countries of Europe has implicated major threats to the economy of the vast majority of the developed countries and has weakened the socioeconomic status of individuals Maddaloni and Peydro (2009); Karanikolos et al., (2013); Gemi (2014). The Financial Crisis Inquiry Commission in 2011 implies that the recent recession was caused by a plethora of investments in mortgage – backed securities based on valuations of high – risk mortgages that were poorly administered. As a result, a rise in interest rates led to borrower defaults, something that resulted in bank defaults and a crash in the housing and stock markets. Moreover, Reinhart and Rogoff (2009) indicates that the economic recession had devastating consequences on falling tax revenues and increased spending, something that led to increased unemployment and severe austerity measures in order government to make large cuts to public expenditures.

According to European Commission (European Commission. 2009) (2009) these austerity measures adopted, included large – scale cuts and public sector reforms, especially in countries that needed bailouts, such as Portugal, Ireland and particularly Greece. These policies have consequently affected economic growth and had severe impact not only on natives but on immigrant families also, who started considering to return back home Damette and Fromentin (2013). Correspondingly, Matsaganis and Leventi (2013); Eurostat (Eurostat. 2013) suggest that the recent economic crisis in Greece and the government’s fiscal merger

effort resulted in elevated tax evasion, considering that the size of negative growth in 2011 was at -7.1%, -6.4% in 2012 and -4.2% in 2013. At the peak of the debt crisis in Greece, the Greek government negotiated a 110 billion Euros loan with the EU, the European Central Bank and the IMF, something that obligated the country to obtain severe austerity policies, such as broad spending cuts, tax increases and an aggressive structural reform programme, International Monetary Fund (2011).

As a result, the improvement of the country's primary balance was significantly depended by the revenues of the economy. Total general government revenues followed a steady upward course, rising from 38.3% of GDP in 2009 to 44.7% in 2012, while government costs fell from 54% of GDP in 2009 to 51.4% in 2010 Eurostat (2013). Respectfully, the reasons for evaluating the tax revenues on the political agenda are profound. According to Schneider (2012), the Greek informal economy was six points above the EU average, while conforming to OECD (2013) the outstanding tax debt as a share of annual net tax revenue in Greece was 89.5% in 2010, related to an OECD average of 13.5%.

As a consequence, high tax revenues provoked also social and political disintegration within the country's borders. Tax evasion led to serious socioeconomic imbalances with high inequality and poverty rates, Matsaganis (2013) something that obliged not only Greek natives, but further existing immigrants to reconsider their stay in Greece and renege to their home countries in order to improve the quality of their life Gemi (2013); Triandafyllidou (2014).

## **2.4. Social factors<sup>5</sup>**

### **2.4.1. Unemployment Rate**

Variable	Unemployment Rate
Definition	The percent of the total labour force that is unemployed, but actively seeking

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<sup>5</sup> Indicators' definitions and information were found in the World Bank organization data site with latest examples (<http://data.worldbank.org/>). If not, different reference will be given.

	employment and willing to work. Unemployment rate is one of the most closely watched variables because a rising rate is seen as a sign of weakening economy.
Unit measure	% of total labour force
Greece	17.7 (2011); 24.2 (2012); 27.2 (2013); 26.3 (2014)
Maximum	31.0% for Mauritania (2014)
Minimum	0.3% for Qatar (2014)

A great number of academic literature exists on the unemployment rates during the economic recession of 2008 in Europe, as has slowly resulted into a European unemployment crisis. This variable is of great importance in the financial environment of a country due to the fact that it has a direct effect on individuals' lives, something that is reflected negatively on the economic performance of these countries. Verick (2009); Schwert (2011) indicate on their study that the unemployment rates in Europe during the financial crisis will continue to augment with severe implications in young persons. Verick (2009) reports by employing data for both the current previous economic downturns that young people are hit hardest by the countries with high unemployment rates. Moreover, the author concentrates on the fluctuations in the increase of the unemployment levels between various European countries, due to the different combination of the degree of economic contraction.

One of the major findings of this study was that the majority of the European countries that experience higher unemployment, such as Spain, was keener to target measures to individuals in order to avoid the impact of the economic crisis. In addition, it was obtained that some sectors of the economy, such as construction and manufacturing are more vulnerable during this financial downturn; thus the risks for unemployment between these sectors are unequally distributed. In addition, Lesche and Watt (2010) focus their interest on a study between 25 EU member states, by employing variables such as GDP, working hours, employment and unemployment rates during the economic downturn period (2008 - 2009) in order to investigate the effects of the financial recession on the levels of yields for those areas. The authors concentrate on the consequences that arise between the EU member states due to the declining level of output that leads to a reduction of working hours. Additionally, another important finding of the study is that countries with higher internal flexibility are less affected on their labour market performance during the economic crisis, especially in short - run period. Finally, as the authors reveal some statistical results in the study, they indicate that unemployment rates accelerated approximately 33% within this period and countries such as Spain and Ireland suffered the most from unemployment, while some others, like Germany, were slightly affected by the phenomenon, because of an application of efficient

employment policies, such as short - time working schemes.

Accordingly, Arpaia and Curci (2010b) using identical variables as Lesche and Watt, (2010) such as wages, working hours and employment - unemployment rates, concentrate their interest on the behaviour of the labour market among the EU member states during the economic crisis of 2008. The authors focus on the rise of the unemployment rates which are influenced more by the reduction of job finding rates, or by the increase in job separation rates. In addition, by observing variously types of labour market behaviours within Europe, the authors concluded that at the beginning of the downturn, countries such as Spain and Ireland had higher unemployment rates as they were exposed to sectors, such as manufacturing and construction that were seriously affected by the recession. Finally, another significant outcome of the study that it is in accordance also with Verick (2009) is that unemployment rates among young people are more affected during the period of the financial crisis.

Regarding now the phenomenon of migration during the financial recession in Europe, Skeldon (2010) implies that as migration is positively associated with development in a country, lower rates of development lead to a significant decrease in migration flows. More specifically, the author indicates that economic factors, such as growth rate, job creation or unemployment rates can create short - term variations in volume and direction of the phenomenon of migration. According to the author, financial recession decreased economic variables approximately -2.2% for 2009, something that had a negative impact on employment rates and consequently on migration population that slows to principal destinations.

Koser (2010) indicates that the phenomenon of migration is highly associated with the global economy. As a result, growing imbalances in development, the economic crisis, high rates of unemployment may have a significant effect on the number of migrants in Europe as a destination country. The author implies that as the current financial recession has a strong impact on employment rates, this consequently affect migration patterns between the European countries. In particular, a slowdown in the rates of employment declines the migration flows within EMU.

#### 2.4.2. Long – term unemployment

Variable	Long-term unemployment
Definition	Is defined as referring to people who have been unemployed for 12 months or more. The ratios calculated here show the proportion of these long-term unemployed among all unemployed, hereafter called long-term unemployment rates. Lower duration limits (e.g. six months or more) are sometimes considered in national statistics on the subject.
Unit measure	% of total unemployment
Greece	49.3(2011); 59.1 (2012); 67.1 (2013); 73.5 (2014)
Maximum	83.2 for FYROM (2014)
Minimum	1.2 for Mexico (2014)

The economic crisis that started in the mid 2007 led to the biggest recession since the great depression of the 1930s with dramatic consequences on financial performance, labour productivity and employment Choudhry et al., (2014). The authors in their study show the great impact of financial downturn on long – term unemployment that also goes afar the impact that comes from GDP changes. Accordingly, Furceri and Mourougane (2009) indicate that long – term unemployment depends notably on microeconomic cyclical conditions, as for instance the case of the recent economic crisis. Furthermore, Scarpetta et al., (2010) imply that during the global recession the decline of GDP converted into a reduction of labour demand, something that results in long term unemployment, while accordingly Choudhry et al., (2014); Bell and Blanchflower (2009) suggest that the economic crisis increases the risk of long term labour inactivity and additionally results in a further rise in the emigration levels as the vast majority of the natives would leave their home regions due to the phenomenon of “hysteresis”.

In addition, OECD (2013) suggests that the economic crisis that hit significantly the OECD countries raise highly the long term unemployment and shows no tendency to return to its natural level. Consequently, as the long-term unemployment is one of the pressing problems and the situation during the recession remained feeble, many natives decided to leave their country and emigrate abroad in order to seek for better conditions. Consistently, Kelly et al (2011) support on their study regarding long term unemployment in Ireland that the recent global recession in OECD countries made individuals more vulnerable to long term unemployment and increased the risk of emigration in order to minimize the impact of the recession on their lives.

Elsner et al., (2013) imply that the recent recession that represents the deepest crisis in the post war era had a great impact on labour market conditions. In particular, in the USA and the EU countries labour market have dramatically deteriorated, something that led to a severe increase in unemployment. As a consequence the behaviour of labour market stocks have been dramatically decreased something that led to important departures of natives to more prosperous areas. Kouretas and Vlamis (2010) indicate that the financial crisis which led to a severe increase of public debt in the vast majority of the developed economies affected dramatically the employment rates with great speed. Alongside, the financial crisis caused an extensive decrease in demand for goods and services, something that led to a further reduction of employment rates Argyrou and Tsoukalas (2011).

In addition, Asensio and Lang (2010) suggest that the mid 2007 financial recession broke out has been characterized by relatively high long term interest rates, a low rate of productivity and competitiveness and dramatically high unemployment rates. Insofar, the authors indicate that as the global recession led to a decrease of wages and to increasing unemployment level, this simultaneously results in an augment of emigration rates, as natives decided to emigrate and seek for better opportunities abroad. Similarly, Couch and Placzek (2010) imply that the recent downturn resulted in prolonged earning losses due to the high unemployment rates in the vast majority of the advanced economies while Bertrand et al., (2010) sustains that labour market conditions have significantly deteriorated since the onset of the global financial crisis in the mid-2007, making this the most dramatic labour market recession since the great depression of the 1930s. Furthermore, the author indicates that the recent financial recession understates the huge growth in economy, something that unavoidably results in predictable unemployment and consequently in a considerable increase of emigration levels.

There is a strong link between long term unemployment and emigration, as according to Pissarides (1992) and Rutkowski (2006) some of the main consequences of long term unemployment are corrosion of human capital, poverty and social exclusion. Individuals who experience labour inactivity for a long period decide to abandon their home countries and emigrate to richer areas, where employment opportunities are larger.

In Greece, the economy of the country was in the middle of the crisis years before the recent economic crisis, characterized by high debt, large fiscal deficits and a continuous

decline of competitiveness and employment rate. Therefore, the crisis of 2007 enlarged these negative impacts and accelerated the decline of the Greek economy Bank of Greece (Bank of Greece. 2014). As a consequence, the rate of long term unemployment which was already relatively high, rose to 38% in 2011, IMF (International Monetary Fund. 2011), while World Bank (World Bank. 2013) indicate that in 2013 the long term unemployment rate increased to 45%. Furthermore, Featherstone (2011) supports that the recent Greek sovereign debt crisis exposed the country to a vulnerable financial position. Thus, the country had failed to conquer the severe consequences of low competitiveness, investment imbalances and high unemployment rates. Featherstone (2011) indicates that due to the financial downturn, Greek government decided to decrease or cut wages and pensions, while long term unemployment was projected to be 45% in 2013. Consequently, and not surprisingly, as Greece has maintained a high level of long-term unemployment, the vast majority of the Greek natives made an attempt to emigrate abroad in order to shift themselves towards more prosperous economies.

#### 2.4.3. Population growth

Variable	Population growth
Definition	An increase in the number of people that reside in a country, state, county, or city. To determine whether there has been population growth, the following formula is used: (birth rate + immigration) - (death rate + emigration). Businesses and governmental bodies use this information to make determinations about investing in certain communities or regions.
Unit measure	(annual) %
Greece	-0.1 (2011); -0.5 (2012); -0.7 (2013); -0.9 (2014)
Maximum	8.1 for Oman (2014)
Minimum	-4.2 for Andorra (2014)

The recent financial crisis has put significant strains on public economics within the European countries with considerable effects on the GDP ratio and population growth, Checherita and Rother (2010). Accordingly, Reinhart and Rogoff (2009) imply that as during the financial recession the government debt ratio was increasing rapidly, deteriorated consequently some other social and economic variables, such as population growth. This is also reflected in the work of the European Commission (European Commission. 2009), which indicates that the subdued GDP growth will have negative implication on population growth, something that leads individuals to emigrate in order to obtain better financial prosperities and increase their fertility rates. Consistently, Pruchniak (2011) suggests on his analysis that

the economic growth determinants have a significant impact on population growth. As a result, according to the author there is a tendency of human capital transition abroad in order to diminish the financial downturn.

Furthermore, Sabotka et al., (2011) support that the recent financial has a great impact on population growth and migration, while Kreyenfeld (2010); Adsera (2010) suggest that economic recession affects fertility and population growth differentiated though by sex, age and ethnicity. According to an older study of Tausig and Fenwick (1999) an economic crisis in general affects population growths, due to many financial reasons, as for instance lower income, wage cuts, higher unemployment rate, something that consequently entails uncertainty and affects the lives of many individuals. Moreover, Neels (2010) is in line implying that the recent financial analysis is strongly related with population growth.

In addition Billingsley (2010) shows in her study that GDP growth change is positively related with fertility rates and consequently with population growth, while constantly Adsera and Menendez (2009) indicate that GDP and unemployment rate are positively correlated with population growth. Consequently, the economic recession increased the impact of uncertainty across individuals. Bernardi et al., (2008) point out that high level of insecurity and ambiguity are expected to affect negatively fertility decisions, while social cohesion of a country is being restructured. In particular, Kreyenfeld (2010) analyzes different responses to insecurity, as many individuals with financial worries decide to emigrate in order to seek for a prosperous future abroad, in which they can have more possibilities to have a child.

Considering in Greece, the global financial recession has severely affected the local economy with dramatic implications in several socioeconomic determinants Kondilis et al., (2013). After 14 years of economic austerity since 1994, Greece's GDP started showing zero growth rates since the mid-2007, and negative growth rates since the mid-2008. According to Giannetou (2012) in this tough economic situation, the vast majority of the Greek population started living under a risk of uncertainty, poverty and social exclusion that led to deterioration of population growth. In addition Kondilis et al., (2013) indicate that financial crisis increased significantly unemployment rate, poverty and insecurity, something that consequently affected negatively the population growth, while Mavroudeas (2010) additionally shows that there is a strong link with emigration as the vast majority of Greek



natives experienced these dangerous conditions and therefore could not any longer afford this situation, thus the vast majority decided to emigrate and improve their economic and social indicators abroad.

#### 2.4.4. Poverty<sup>6</sup>

Variable	Population growth
Definition	National estimates of the percentage of the population falling below the poverty line are based on surveys of sub-groups, with the results weighted by the number of people in each group. Definitions of poverty vary considerably among nations. For example, rich nations generally employ more generous standards of poverty than poor nations.
Unit measure	(annual) %
Greece	44 % (2013)
Maximum	82.5 for Syria (2006 est.)
Minimum	0.2 for Turkmenistan (2012 est.)

Economic theories on migration explain that the vast majority of migration decisions are mainly influenced by the percentage of poverty in European countries and especially Greece. Kennan and Walker (2011) used an econometric model of optimal dynamic migration decision and implied that there is a strong relationship between income levels and the phenomenon of migration. The scholars developed for a first time structural dynamic models of migration across many locations and indicated that high poverty rate play an important role in migration flows.

Likewise, Belot and Hatton (2011) examining determinants in immigration using stock data for 70 source countries and 21 OECD destination countries including Greece, suggest that poverty rate is a significant factor on migration decisions. Furthermore, Xirouchakis and Kourliouros (2013) report that escalating economic problems in Europe and particularly in Greece, derived from the recent financial recession, have resulted in a fragile economy with poverty rates. Consequently, this situation caused poor people who left their country in search of a better life at another more prosperous one Maroukis (2013).

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<sup>6</sup> Data and definition from CIA, The World Factbook (<https://www.cia.gov/library/publications/the-world-factbook/fields/2046.html>)

Additionally, Cavounidis (2012) conducted a research in Greece including a great number of macroeconomic parameters and showed that as the recent economic crisis has hit the labour market, there were employment levels. As a consequence, unemployment and poverty rates rose at record heights. Greek natives could not afford their country's financial inequalities, with 20% of the total population in 2012 living below the poverty line, El.Stat (2013).

Consequently, due to the effects of the economic recession, unemployment and poverty increasing severely, a great number of Greek natives decided to search for improved living standards abroad.

## 2.5. Institutional factors

### 2.5.1. Democracy index<sup>7</sup>

Variable	Democracy index
Definition	The Democracy Ranking model refers to one political dimension and five non-political dimensions, which are: (1) gender (socio-economic and educational gender equality); (2) economy (economic system); (3) knowledge (knowledge-based information society, research and education); (4) health (health status and health system); (5) environment (environmental sustainability). To every dimension different indicators are assigned, therefore the dimensions behave as indicator-based. All indicators are transformed to a value range of "1" to "100", where "1" represents the weakest (poorest) and "100" the strongest (best) value.
Unit measure	Value range of "1" to "100", where "1" represents the weakest (poorest) and "100" the strongest (best) value.
Greece	68.7 (2011); 67.5 (2012); 64.3 (2013); 66.1 (2014)
Maximum	88.1 for Norway (2015)
Minimum	28.3 for Yemen Republic (2015)

The recent financial recession has incorporated determinants that are strongly related not only with fiscal issues, such as GDP ratio or other economic factors, but also with institutional ones such as the level of Democracy. A great number of recent academic studies

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<sup>7</sup> Information and data found at "Global Democracy Ranking" (<http://democracyranking.org/wordpress/>)

show a significant interest on the effect of institutional variables including level of democracy or level of technology on economic performance of a country. Giuliano and Nunn (2013) in their study show the positive relationship between level of democracy and economic development. Accordingly, Persson and Tabellini (2009) indicate that persistent level of democracy is strongly associated with beneficial financial levels. Hallerberg and Scartascini (2011) suggest that financial recession is significantly correlated with democratic institutional frameworks of a country.

Furthermore, Giuliano et al., (2013) imply that more secured democratic rights in a country result in higher economic development. Particularly during the recent financial recession in European countries and especially Greece, the level of democracy fell in 2010 from 72.69% to 69.8%, something that provides strong empirical evidence that financial recession is highly correlated with democracy. In addition, Olper et al (2009) suggest that the economic crisis affected significantly the democratic regimes, something that consequently led to insecurity and imbalance. In fact, uncertainty about the economic recession in a country at the individual level drove many natives to leave their home region and emigrate abroad in order to seek for enhanced living conditions.

Accordingly, Eichengreen and Leblang (2008) support that there is a positive relationship among democracy, globalization and human mobility. Additionally, European Commission (European Commission. 2009) imply that the recent financial crisis in Europe and particularly in Greece has caused severe institutional imbalances, while the member states found it difficult to counteract with existing policy instruments something that consequently transformed the financial crisis into a crisis of democratic authority. As a consequence, not only the economic but also the institutional imbalances and vulnerabilities led to significant departures of natives to more prosperous areas Scharpf (2011).

### 2.5.2. Corruption<sup>8</sup>

Variable	Corruption perceptions index
Definition	Transparency International (TI) has published the Corruption Perceptions

<sup>8</sup> Data and information extracted from "Transparency international"  
(<http://www.transparency.org/research/cpi/overview>)

	Index (CPI) since 1995, annually ranking countries "by their perceived levels of corruption, as determined by expert assessments and opinion surveys." The CPI generally defines corruption as "the misuse of public power for private benefit."
Unit measure	Its scale goes from 0 (highly corrupt) to 10 (very clean). Note that since 2013 the scale goes from 0 to 100, however we study the period 1990-2012.
Greece	36.0 (2012)
Maximum	9.5 for New Zealand (2012)
Minimum	1.0 for Somalia (2012)

Corruption has also been studied as an institutional determinant, Aisen and Veiga (2011). Accordingly, Apergis and Danuletiu (2013) who employed data from 2000 – 2011 from Romania and investigated the relationship between corruption and public debt indicated that there is a significant causality between these variables. This is also reflected in the work of Hallerberg and Ylaoutinen (2010) who indicated that there is a bidirectional significant relationship between public debt and corruption. It is well known that high levels of corruption affect all sectors within a society, especially when it is undertaken by vulnerability and uncertainty due to financial crisis. According to the data of Transparency International, many European countries and especially Greece during the financial downturn were challenged by strong corruption rates due to lack of financial capital. Particularly, Greece according to the Transparency International has a corruption index at 4.0 in 2002 at 3.8 in 2009 and at 3.6 in 2011 on a scale of 0 to 10, with 10 being a clean country.

Consistently Cerqueti and Coppier (2011) suggest on his analysis that certain characteristics of a society may affect public deficits and public debt especially during financial crisis, while at the same time these variables influence levels of corruption and economic freedom. As a result, according to the authors as countries suffer more from corruption there is a higher likelihood for natives to emigrate to countries less corrupted with higher growth rates.

Furthermore, Hessami (2010) support on his that higher corruption rates are related with score of spending on health. In particular, Karanikolos et al., (2013) indicate that especially in the middle of the financial recession, corruption in health care was in Greece strongly affiliated with 40% cuts of hospital budgets and shortages of staff, something that motivated a great number of natives to leave Greece as they could no longer afford uncertainty and serious economic hardship. According to a more recent study of Grechyna (2012) there is a significant relationship between public corruption and public debt,

something that consequently requires vulnerability and insecurity and affects the life of many individuals.

In addition, Dimant et al., (2013) show in their study that despite socioeconomic and demographic factors, politico – institutional ones such as political instability or high corruption rates are major push factors which contribute to individuals ‘decision to emigrate. Especially in periods such as financial crisis in which individual and living conditions are bad for the vast majority of the citizens, high levels of corruption are strongly associated with low levels of economic activity Campos et al., (2010). Thus based on these lines of reasoning, high corruption is among the factors that contribute to low financial rates and consequently to insecurity and ambiguity, something that consequently leads to emigration, in order individuals seek for a more prosperous future abroad.

### **2.5.3. Bureaucracy**

Variable	Bureaucracy
Definition	An administrative system in which the need or inclination to follow rigid or complex procedures impedes effective action
Unit measure	A score of 1 means the best performance in autonomy and bureaucratic expertise, while 0 means the worst performance.
Greece	0.38 (2012)
Maximum	0.91 for Singapore (2012)
Minimum	0.08 for Eritrea (2012)

The financial recession that started in 2009 had significant effects not only on economic performance, but also on institutional determinants such as levels of bureaucracy, imposing so important alienation at the price of government efficiency Adler (2012). The author in his study shows the impact of financial downturn on government administration and argues that due to insecurity and vulnerability of economic crisis, bureaucracy’s role on employers is facilitating and coercive. The recent few years there have been signs of significant interest in bureaucracy, Olsen (2008), as there is a escalating concern that the financial downturn affects bureaucracy on markets and social networks.

Accordingly, Ladi (2014) indicates that the economic crisis that has hit Europe a few years ago has provoked a wave of public administration reform in the vast majority of European countries. The imbalance and insecurity made Ireland, Southern Europe and

particularly Greece more vulnerable to bureaucratic attacks. In particular, in the peak of the financial crisis in Greece, the level of bureaucracy in 2011 and 2012 was 0.38 and 0.36 accordingly when score 1 means the best performance in autonomy and bureaucratic expertise.

As Greece was the first country that seeks financial assistance in order to recover from the recession, bureaucracy was a key obstacle for public administration to recover and attempt to deal with the crisis OECD (2011). Furthermore, Pianta (2013) implies that during the financial downturn, has led to further losses of democratic accountability that consequently resulted in a weaken public administration due to elevated levels of bureaucracy.

As a result, not only financial but also social cohesion has been seriously tilted due to the recession something that additionally results in a further rise in emigration, as the vast majority of the natives could not afford imbalance and insecurity. In addition, Campello et al., (2010a) suggest that the economic crisis that hit significantly the OECD countries has weakened the legitimacy and power of government to control high levels of bureaucracy that are strongly related with economic activities and social results. Consequently, as the role of governments in regulating bureaucracy and equal public distribution has been reduced, the outcomes have been worsening economic performance, social vulnerability and political instability increased the levels of emigration in order to minimize the impact of crisis on their lives.

Accordingly in Greece, due to the severe sovereign debt crisis, the country has been exposed to the governance weakness and failed to defeat major problems of low competitiveness and high bureaucracy levels in the public administration placing itself in a vulnerable position, Featherstone (2011). As a result, individuals remained suffering the nightmare of uncontrolled deficits and unstable society, hence Greek natives decided to leave their country in order to escape from weakness of governance and financial uncertainty.

## **2.6. Sample and Data**

In this section an interpretation of the data employed for the analysis is going to be outlined, in order to create an extensive explanation of how, where and when the data have been obtained and what is their use on the estimation of our outcomes.

In our thesis, all samples of data were collected on a yearly basis from the List of the Organization for Economic Co – operation and Development Database, the World Economic Output Database and the World Bank Database. Unfortunately, some data for Greece were missing. However, we managed to obtain data directly from the Hellenic Statistical Authority (ELSTAT) in 2014 with data for the years 1990-2012. This helped us in one hand to crosscheck data for Greece already obtained from different database but mainly, in the other hand, to complete the missing ones for the years 1990-2012.

We employ a number of significant financial/economic variables as well as some social and institutional ones that has important impacts on the financial position of each country and especially for Greece. All variables have been obtained on a yearly basis, in order to indicate the yearly differences that have been created from the economic and social activity of these variables.

In our first empirical chapter, we obtain a comprehensive sample of 13 European countries from 1990 – 2012. Since we are mainly interested in the financial impact of the euro zone and the financial crisis on the phenomenon of migration in Europe we have divided the 13 countries into 3 groups in order to investigate the behaviour of each group during these periods. The first group is composed by the Weak EMU countries (Spain, Greece, Italy and Portugal), the second includes the Strong EMU countries (Austria, Belgium, Germany and the Netherlands) and finally the third group represents the Non-EMU countries (Denmark, Norway, Sweden, Switzerland and the UK). We will then proceed to a quantitative analysis of the economic, social and institutional determinants on migration, in order to comprehend their relationship with the phenomenon of immigration towards these 3 groups of European countries where we will also focus to the case of Greece. Most of the financial/economic data were found from the World Bank Database but always checked from other sources. For the case of Greece, since some data were missing they were completed by the data obtained from the ELSTAT thus giving us a complete new database. However, we note here that since some of the factors had not yet values for 2013, 2014 and/or 2015 our study was limited up to year 2012.

In the second empirical chapter of our thesis we study the emigration flows from Greece. As a result we obtain a sample concerning Greek nationals' migration outflow in search of wealthier destinations. Finally, in our third and last empirical chapter we study the

phenomenon of return migration were we have collected a sample with the migration outflow of regular immigrants in Greece who abandon the country to return to their own, as a consequence of the prolonged crisis in Greece. In both chapters many data were completed by the ones we had acquired from the ELSTAT thus leading to a new database. Again the limited values of factors for 2013, 2014 and/or 2015 constrain our study up to 2012.

Finally, it is important to mention that our data has some limitations that need to be taken under consideration. First of all, yearly data have been employed, as some of the variables needed for the completion of the analysis, did not have monthly data available. Moreover, some variables such as social or institutional indicators are data only on a yearly basis. Analysis based on annual basis figures was not expected to cause significant problem on our results, as it was considered more important to examine the rate of each variable at the end of the year, in order to avoid cyclical effects. Furthermore, even though it would be more accurate for our model to employ more economic variables, nonetheless, our major purpose is to observe the impact of the most important variables in an economy that influence the financial position of the countries.

## **2.7. Methodology – Analysis plan**

Furthermore, in this section, we explain the statistical model we are setting up and how we will test it for a reliable analysis of the results.

Various types of cross - sectional data have been selected, in order to distinguish the importance of the above mentioned variables regarding the migration flows. According to Baltagi (2005) "panel data which are also known as cross sectional time series data, refer to the pooling of observations on a cross - section of households, countries, firms etc over several time period". In our current case, the variables will be tested throughout the predetermined periods.

In order to address our hypotheses for our empirical analysis, ordinary least square (OLS) model will be employed for the purpose of measurement of the behaviour of the selected variables. Thus, for the adaption of this model Stata 13 will be used in order to adopt a constant econometric analysis of our data. Nonetheless, whilst our sample size is small it is more than necessary to apply a method that does not require distributional assumptions such as normally distributed errors and can also provide more accurate inferences when the data



are not well behaved. Particularly, bootstrapping offers a number of advantages, as it is quite general and it is possible to employ it to statistics with sampling distributions that are difficult to derive, while additionally it is relatively simple to employ it in complex data-collection plans as for instance stratified and clustered samples. By employing bootstrapping, one applies a large number of “copies” of a sample statistic, computed from these phantom bootstrap samples. Afterwards, a small percentage, as for instance  $100(\alpha / 2) \%$  (usually  $\alpha = 0.05$ ), is abbreviated from the lower as well as from the upper end of these numbers. The range of remaining  $100(1-\alpha) \%$  values is affirmed as the confidence limits of the corresponding unknown population summary number of interest, with level of confidence  $100(1-\alpha)\%$ . Additionally, bootstrapping permits conveying measures of accuracy to sample estimates. This technique accepts estimation of the sampling distribution of almost any statistic using random sampling methods. Commonly, it writes off in the wider class of resampling approaches. Further, bootstrapping is the application of appraising properties of an estimator as for example its variance, by computing those properties when sampling from an “assessing distribution”. A typical assortment for this application is the “empirical distribution” function of the observed data. In the case where a set of observations can be assumed to be from an autonomous and comparably dispersed population, this can be implemented by constructing a number of resamples with replacement, of the perceived dataset. Therefore, whilst our data set is fairly large accordingly in the following empirical chapters, bootstrapping scheme is considered more than acceptable in order to give the appropriate information of the explanatory variables.

Further, the OLS model observes the cross sectional values of each variable over a period of time. As a result, OLS model has gained popularity due to its variability which is "negligible" across time or space. Thus, as it combines space and time, this model can rely upon higher variability of data in respect to simple time series or cross section models. Nonetheless, the OLS model is also associated with some complications. Firstly, a significant problem of this model is that observations are not independent across time and space, especially when the cases are usually different. Moreover, if we would like the OLS model to be a reliable estimation that can provide reliable results, the regressions included, need to be uncoil correlated with the error term, Cameron and Trivedi (2005). In addition, Wooldridge (2002) indicates that even though heteroskedasticity occurs, serial correlation cannot be observed. In multiple regression normality of residuals is only required for valid hypothesis testing, that is, the normality assumption assures that the p-values for the t-tests and F-test

will be valid. Normality is not required in order to obtain unbiased estimates of the regression coefficients. OLS regression merely requires that the residuals (errors) be identically and independently distributed. Furthermore, there is no assumption or requirement that the predictor variables be normally distributed, Baltagi (2005).

The equation below shows an interpretation of this model with the inclusion of the variables that have been employed into the analysis.

$$Mig_t = \alpha + \sum_i \beta_i f_{t,i} \quad (1)$$

where  $t$  indicates the year and takes values from 1990 to 2012,  
 $f_{t,i}$  is the  $i$ th indicator used in the analysis at the year  $t$ ,  
and  $\beta_i$  the  $i$ th coefficient associated to the  $f_{t,i}$  indicator.

In each empirical chapter we state some hypotheses on the coefficients of the variables of the regression model.

We will calculate the Pearson correlation matrix among variables used in the cross sectional regressions. We discuss the significance of each coefficient and make some tests in order to check on how well our data meet the assumptions of OLS regression.

After each regression analysis we generate residuals with STATA's 'predict' command and check normality using the Shapiro-Wilk W test for normality ('swilk' command in STATA). In this test the p-value is based on the assumption that the distribution is normal. If the p-value is too low, normality is rejected in which case our model would need further investigation.

Moreover, we also check multicollinearity by using the package COLLIN to compute variance inflation factors (VIF) for the variables. Tolerance, defined as  $1/VIF$ , is used to check on the degree of collinearity. A tolerance value lower than 0.1 is comparable to a VIF greater than 10, in which case the variable could be considered as a linear combination of other independent variables and the model would need a different approach as for the independent variables.

## **CHAPTER 3. Financial and Social Determinants that affect the phenomenon of Migration in Europe**

### **3.1. Introduction**

When the Asian economic crisis began in Thailand in July 1997, with the devaluation of stock market and a reduction in asset prices that led to a sharp rise in private debt in the whole Asian continent, Icduygu (2003), the most important migrant sources in Europe were from the Asian Commonwealth (including Pakistan and India), Mitchell Pain and Riley (2011). There is evidence of similarly large number of migrants in the UK after 2007, especially from other Asia countries including China Home Office. In particular, between 1992 - 1995 and 2003 - 2007, there is an increased immigration flow, which was recorded in Europe and especially in the UK from Asian Commonwealth and other Asia except Hong Kong, Mitchell et al., (2011). It is well worth mentioning that employers in McDonald's started considering migration as the only solution to their unemployment problem, when the Asian economy was slowing down, and consumers lost their appetite for the restaurant which consequently led an important number of restaurants to a closure, Watson (1997). After suffering through a very rough year in Asia, McDonald's made an announcement that only in China the sales had dropped in the fourth quarter by 40 points and for all the 2013 the company endured a 3.6% decline.

The current chapter is based on a vast literature review on the various economic determinants of the phenomenon of migration in Europe during the financial crisis. Reinhart and Rogoff (2010), Checherita and Rother (2010) and Boubtane and Dumont (2013) focus on the fundamentals explaining the relationship of the GDP growth rate with the public debt and migration. Additionally, Mumtaz and Surico (2013) analyze the determinant of inflation and explain that it is a phenomenon that affects the economic situation of a country and consequently the phenomenon of migration. Other studies in the literature that analyze the economic variables that influence migration are Ordonez, (2007), Barrell et al, (2007) and Koser (2010). Finally, De Haas (2010) and Clemens (2013) shed light on the economic factors that affect labour movements during the financial downturn in Europe. Indeed the authors indicate that specific economic factors such as persistent inflation rate and unemployment, lead to a misallocation of researchers with medium and long-term costs.

Specifically these economic factors favour market globalization and greater human trade flows as immigrants make efforts to reduce their labour market tightness and better the quality of their lives.

Following some years of stable economic activity among the countries of the EMU, the deepest and the most severe financial recession spreader from the United States to almost the entire world (Beets and Willekens, 2009) and caused a lot of economic and social problems on the member states. More specifically, apart from the deterioration on the global economy and especially on the banking sector, which experienced a significant loss from bad loans during the economic downturn, due to the financial inability of many institutions the current crisis reduce also the inflows of migrants from developing countries to developed ones, Cali and Dell' Erba (2009), Mody and Sandri (2012). This raises several interesting Questions.

- i. Do the underlying determinants influence decisively the phenomenon of migration in Europe? If so, does the existing literature identify all of the key factors of migration?
- ii. Which are the parameters that impact the phenomenon of migration?
- iii. Finally, in which of the three country groups (Weak EMU, Strong EMU and Non EMU) are these factors more frequent?

Motivated by the absence of relative empirical evidence, we address these issues and examine the relationship among the underlying factors and the phenomenon of migration. We use a large and comprehensive sample of 15 European Union countries from 1990 to 2012. In an important departure from prior studies we separately divided these countries into 3 groups in order to investigate the behaviour of each group during these periods. The division has been made according to the European monetary condition of the different countries in Weak EMU countries, Strong EMU countries and Non-EMU countries, as introduced in the previous chapter (Weak EMU countries: Greece, Ireland, Italy, Portugal, Spain. Strong EMU countries: Austria, Belgium, France, Germany, Netherlands. Non EMU countries: Denmark, Norway, Sweden, Swiss, UK). Additionally, we look forward to shed light on the economic and social determinants on migration, as they emerge, especially in Weak EMU countries which have relatively larger exposure to the phenomenon. Indeed, as Massey et al. (1994) suggest, gather visibility through specific quantitative methods leads to greater understanding of the factors that influence the phenomenon of migration.

Interestingly, at first glance we report strong support for our conjectures. In particular, partitioning the sample we obtained that Weak EMU countries were more resolved to the financial downturn. The effect is consequently significant and it affects negatively the behaviour of each economic variable. We further find that, Strong and Non - EMU countries were not that exposed to the current economic crisis and were in a better economic situation than the first group. Importantly, this result indicates that regions outside the EMU are financially more robust, as they are more independent. This last supports Klepsch and Wollmershouser (2011), who suggest that Strong and Non EMU countries are a safer investment for a potential migrant. In addition, we detect that GDP growth rate, inflation and the imports of goods are positively significant to migration, while in contrast the 10 year government bond yield is negatively associated to the phenomenon.

The current study is related to the work of Wall and Connolly (2012), Fratzscher (2012), Feldkircher (2012), who empirically examine the relationship among some economic variables and the financial crisis. We update their work using a comprehensive sample of country – data, extracted from important and accurate organizations' databases, as well as by considering related economic variables on migration and offer new evidence on their associated relationships. Biaggi et al, (2011) examine the effect of economic and social variables on the mobility behaviour in Italy. We extend their work by distinguishing the variables into two time periods and investigate the migrants' behaviour before and after the current economic recession.

Even though the economic downturn affected significantly the financial markets within the years of 2007, 2008 and 2009, nonetheless it was 2010 when the crisis impinged these markets the most Fernandes and Mota (2011). In the middle of this economic downturn, there has been a severe crisis of confidence within the euro zone due to the uncertain and unstable performance of the so - called PIIGS: Portugal, Ireland, Italy, Greece, and Spain. These countries experienced large deterioration in their financial position, as the vast majority of their financial institutions were not able to make accurate determinations of the value of financial assets. As a result, the tight credit reduces automatically consumer spending, while led to layoffs and as the global trade fell, the unemployment raised, Martin, (2009a). The job losses in PIIGS during the 2008 - 2011 economic downturn have been mainly concentrated in construction and manufacturing.

Specifically, the euro zone crisis started from Ireland in 2008, when Irish banks did not take the appropriate financial measures and they were finally exposed to the over lending in the Irish property market. Thus, when this property market bubble bursts, the “Celtic Tiger” went into a deep recession and unemployment rate doubled between 2008 and 2009 to 11%, Cullen (2009). Further, Spain as well experienced a similar crisis due to the encouragement of the building boom, which led to a large increase in its public debt levels during the recession, Ali (2012) and the unemployment rate has been doubled to 17% by summer 2009, Martin (2009a).

Greece followed by facing a classic sovereign debt crisis because of the expansionary policies that followed as acquired high levels of debt during the decades before the recession when the capital markets were still highly liquid, Nelson et al, (2011). However, as the economic downturn started, the capital markets became more illiquid and consequently the Greek government was unable to cover its debt obligations; something that led to high levels of borrowing rates and remarkably high levels of public debt.

In addition, Italy faced the collapse of house building and manufacturing, something that caused serious problems to the national banks, as there was a high reduction in liquidity. As a result, Italy experienced a large increase in its public debt levels due to the instability of the property sector, something that downgraded the trade rating of the country, Ali, (2012). At the same pattern, Portugal since 2000 experienced very slow productivity rates, almost no economic growth and increased rate of unemployment, Reis (2011). However, at the same time Portugal wages had been raising as the government was borrowing debts at a rapid pace, something that consequently led to downgraded rates and to the experience of low levels of transparency and accountability in its government Andrade and Duarte, (2011). As a consequence, migrants who have been employed in the mentioned sectors have been exposed in the threat of unemployment, something that created negative consequences on the economies of these countries. The economic recessions mentioned above, can show that there exist different behaviours among the EMU states, where some of them are exposed in periods of instability, while others are less influenced or even in a better situation.

The rest of the chapter is organized as follows. According to the literature review in section 3.2 we select the variables that we will use for the regression analysis of this chapter

and state our main regression hypotheses (hypotheses about the regression's coefficients, thus about the relation of each independent variables with the migration flow). In section 3.3 we relate the general analysis plan of Chapter 2 with our chapter and present our results in section 3.4 and finally conclude this chapter with the discussion section 3.5.

### **3.2. Variables and Hypotheses**

The global financial crisis of 2008 delivered migration an area of escalated interest for researchers, whilst synchronically migration networks emerged as an appealing approach to study the way a great number of variables affect the phenomenon. As introduced in chapter 2 the “push-pull” theory, based on Ravenstein's laws of migration, is the most dominant theory that makes effort to comprehend the phenomenon of migration.. People, due to unfavourable conditions, decide to leave their home countries and establish themselves to new ones, because of favourable factors.

These determinants that include high cost of living, high levels of taxation and job insecurity Mattes et al., (2000), Rogerson (2001), Ramphela (2008) are social and economic factors and push the potential immigrants out of their country and result in an increased loss of skills. Harvard Group indicates that this loss of human resources deficits is a significant limitation for a future development of a country.

The recent financial turmoil has made clear that there is a strong need for sound empirical work in this area, in order to evaluate the relationship between the phenomenon of migration and economic – social conditions in Europe.

Some researchers, such as Featherstone (2011); Arghyrou and Kontonikas (2012), Lane (2012); offer detailed empirical investigations on the European economic crisis and concentrate their studies on this aspect, as euro zone's public finances appear to be in particularly poor situation. Especially the Literature Review on this chapter will focus on the economic variables that affect the phenomenon of migration in Europe during the crisis and make some comparisons between EMU countries and Non EMU. Indeed, Reinhart and Rogoff (2010); Santis (2012) as well as Arleta and Hale (2008) suggest that a number of determinants need to receive a fair amount of attention in order to comprehend how these factors affected migration during the financial recession.

As GDP growth rate is considered to be one of the most critical factors in an economy, a great variety of academic literature exists in order to explain its relationship with the public debt and migration especially within the European member states, Reinhart and Rogoff (2009), (2010) used a wide range of data of 44 countries crossing over two centuries of data on government debt and growth. The scholars indicated that not only across advanced countries, but also in emerging markets high public debt is associated with lower growth outcomes. Likewise, Checherita and Rother (2010) examine the experience of 12 European countries for a period of 40 years in order to concede the implications of government debt on GDP growth. Their main finding is that there exist some differences in the relationship between public debt and long-term growth. In Europe, for member states like Netherlands, Belgium and Spain, the public debt is followed by higher GDP growth, while in countries like Austria, France, Germany and Italy the higher the public debt is the lower GDP growth.

Regarding the impact of GDP growth rate to migration, Mc Donald and Temple (2010) imply that the phenomenon of migration has a significant influence on the growth rate of GDP. More specifically, they made a forecast, indicating that from 2013 to 2020 the GDP growth rate in Australia, would be approximately 0.15% points higher with migration, while in 2040 the GDP growth rate would be 0.20% points higher with migration. In addition, according to neoclassical theory, migration increases the GDP growth rate by more than what it costs to employ the migrants Munz et al, (2007), while empirical estimates suggest that more than the half of the GDP growth rate in OECD countries is derived from the human migration capital.

*H<sub>1</sub>: We hypothesize a positive regression coefficient for the GDP growth rate which expresses a positive relationship between the migration flow and the GDP growth rate.*

Government bond yields have received significant attention in the academic literature Calvo (1988), as they heightened influence of the public finances of an economy. Barrios et al, (2009); Blanchard et al, (2010); Hagen et al, (2011) consider this variable as a very important constant of their analysis in order to define various types of changes in the European framework. In addition, government bond yields started rising significantly in Europe, as they were used to examine the difference in the economic behaviour, such as the debt market, during the global financial crisis that has been intensified in September 2008. Moreover, Sgherri and Zoli (2009) report that since the beginning of the current economic



downturn, sovereign risk premium differentials in the euro zone have been widening. More specifically, the spreads on the yield on 10-year government bonds augmented in January 2009 for many European member states including also downgrades of sovereign debt ratings for three of the five PIIGS countries: Greece, Spain and Portugal. Accordingly, Kumar and Okimoto (2011) indicate in his study the effects of government bond yields in periods of ambiguity, when the public debt had a significant rise. The author using a different range of data between 1980 - 2008 and a variety of factors that affect the financial behaviour of a country, found that as the public debt of a country increase significantly, then respectively this variation will be positively related with the aftermath on long run interest rates of government bonds since the default risk of a country increase, leading to an increase in the interest payment of investors.

Various studies focus their interest on the most important determinants that affect the government bond yield between the EMU countries during the global economic downturn that started in the mid 2007, Barrios et al, (2009). More specifically, the outcomes of their study showed that a country's openness is positively related with default risk, while the determinant of the economic growth is conversely related to it in every bond yield maturity.

*H<sub>2</sub>: We hypothesize a negative regression coefficient for the 10-years government bond yields, which means that migration flow tends to be higher when Government Bond Yields experience lower rates.*

Inflation rate in industrialized areas is a global phenomenon that may affect the economic activity of a country, Ciccarelli and Mojon (2008); Reinhart and Rogoff (2011); Bilbiie et al, (2012). A significant number of the academic literature acknowledges the importance of this variable and indicates its impact on the economy. Firstly, Reinhart and Rogoff (2010) study, is based on data of 44 countries, concerning approximately 200 years, and includes a data set of over 3,700 annual observations covering a wide range of institutions, exchange rate arrangements and historical circumstances. Their main finding is that there is no possible coetaneous relationship between inflation rates and public debt levels for the advanced countries, such as EMU member states, while for the emerging markets the inflation fluctuations rise dramatically as public debt increases.

Regarding the relationship of the phenomenon of migration with the inflation rates

Barrell et al, (2007) indicate that there is a link in the short run on unemployment and inflation. According to the authors, this is because labour market equilibrium changes in the short run, because of the adjustment costs, that rise unemployment, descent pressure on salaries and consequently reduces inflation. Accordingly, Ordonez, (2007); Mumtaz and Surico (2011); Aggarwal et al, (2011) imply that there is a relationship between immigration and inflation rate fluctuations, as an increasing labour force augment growth potential, which therefore reduce the strong demand reassures to inflation. In addition, the author suggests that immigrants are more mobile than natives, something that results in the reduction of labour tightness and alleviate upward salaries and price adjustments. Thus, the higher mobility of immigrants' crosswise countries, the longer lasting expansions we can expect with more moderate impacts on inflation.

*H<sub>3</sub>: We hypothesize a positive regression coefficient for the inflation indicator which will show that higher inflation rates in Europe are positively related to migration flow.*

Even though a few literature reviews exist on debt to GDP ratio during the financial crisis this factor is of a great significance. According to Reinhart et al, (2012) the current economic recession has left a tradition of high and rising level of public indebtedness especially within the advanced economy of Europe. The authors, regarding the European central policy debate that focuses on how fast may stabilize the elevated debt to GDP ratio, aim to study the issue by identifying the most significant debt "overhang" in Europe since the early 1800s.

Furthermore, Candelon and Palm (2010) used the balance sheet approach in order to show the potential relationship between the banking and the debt crisis in Europe. Apart from this aim of the report, the authors emphasized on the association between stock market losses and debt to GDP ratio. A positive relationship can be detected between these two variables, as the authors denote that countries that face the highest stock market losses, experience the highest debt to GDP ratio and the highest risk premium. Candelon and Palm (2010) imply that it is logical to explain this link with a wealth effect "a decrease in stock market index leads to a negative wealth shock, having a negative impact on demand, implying a decline in fiscal income and thus a degradation of the debt stock relative to the GDP" augmented by a decline in output.

*H<sub>4</sub>: We hypothesize a positive regression coefficient for the debt to GDP ratio showing that migration flows increase when the percentage of debt to GDP ratio is high.*

Central Government debt is another significant factor, which has a great influence in the economy. Reinhart and Rogoff (2010) as abovementioned reveal that the association between central government debt and the GDP growth is weak for debt to GDP ratios below a threshold of 90% of GDP. In addition, the authors obtained that the threshold for central government debt is similar in advanced and emerging economies.

Finally, another study by Merler and Ferrie (2012) shows that domestic banks keep on their balance sheets an important share of central government debt. The authors, by employing data by national sources of the main euro area countries proved that banks in specific EMU member states have traditionally resolve a larger share of central government debt than in the United Kingdom and the USA. Furthermore, another significant finding is that according to the authors, by reducing the share of central government debt, held by domestic banks will consequently help to reduce sovereign vulnerability in the euro area.

*H<sub>5</sub>: We hypothesize a negative regression coefficient for the Central Government debt. We suspect it is negatively related to the phenomenon of migration in Europe*

Ever since the international financial crisis hit significantly the region of the Southern Europe and of the Western Balkans in the second half of 2007, the global trade had severely affected these specific countries, Bastian (2011). The author implies that the dramatic decline in imports of goods have refocused the countries' path from crisis to recovery. Nonetheless, the recovery according to Anastasakis et al (2011) is "fragile and uneven", something that resulted in a sharper fall of imports than exports especially in countries such as Serbia and Montenegro and PIGS, which had registered confounding levels of above 20%.

Considering Greece, the international economic crisis has affected dramatically the country. According to Lekakis and Kousis (2013) the high public debt of the country could not offer development and positive GDP growth; therefore it would be very difficult for Greece to succeed an augment to the trade of goods, which would help country exit the recession. In particular, between 2003 and 2008, Greece and Albania were the most important trading sources in the area. Concerning bilateral trade volumes, Anastasakis et al., (2011) indicate that merchandise trade with Greece reached 9% of exports and 15% of Albanian

imports. Nevertheless, on the beginning of the financial crisis in Greece, GDP growth started to decline, something that consequently led to a fall of the trading shores between both countries and led to low wage growth and unemployment Carlin and Soskice (2010) while the combination of these two resulted in rise of Greek natives migration.

*H<sub>6</sub>: We hypothesize a positive regression coefficient for Imports of Goods thus are positively related to migration flow in Europe.*

A great number of academic literature review exist on the unemployment rates during the economic recession of 2008 in Europe, as has slowly resulted into a European unemployment crisis. This variable is of great importance in the financial environment of a country due to the fact that it has a direct effect on individuals' lives, something that is reflected negatively on the economic performance of these countries. Verick (2009); Schwert (2011) indicate on their study that the unemployment rates in Europe during the financial crisis will continue to augment with severe implications in young persons. Verick (2009) reports by employing data for both the current previous economic downturns that young people are hit hardest by the countries with high unemployment rates. Moreover, the author concentrates on the fluctuations in the increase of the unemployment levels between various European countries, due to the different combination of the degree of economic contraction.

Regarding the phenomenon of migration during the financial recession in Europe, Skeldon (2010) implies that as migration is positively associated with development in a country, lower rates of development lead to a significant decrease in migration flows. More specifically, the author indicates that economic factors, such as growth rate, job creation or unemployment rates can create short - term variations in volume and direction of the phenomenon of migration. According to the author, financial recession decreased economic variables approximately -2.2% for 2009, something that had a negative impact on employment rates and consequently on migration population that slows to principal destinations.

Koser (2010) indicates that the phenomenon of migration is highly associated with the global economy. As a result, growing imbalances in development, the economic crisis, high rates of unemployment may have a significant effect on the number of migrants in Europe. The author implies that as the current financial recession has a strong impact on employment

rates, this consequently affect migration patterns between the European countries. In particular, a slowdown in the rates of employment declines the migration flows within EMU.

*H<sub>7</sub>: We hypothesize a positive regression coefficient for unemployment stating that migration flow is positively associated with high levels of unemployment.*

### 3.3. Analysis Plan

In this section we use the sample of country – data described in chapter 2. The original sample is divided into 3 groups, consisting of the weak EMU countries that include Greece, Italy, Ireland, Portugal and Spain, strong EMU countries that consist of Austria, Belgium, France, Germany and the Netherlands and the non EMU group which contains regions, such as Denmark, Norway, Sweden, Switzerland, and the United Kingdom, that are not part of the Euro zone.

Inspired of our data we investigate the influence of 7 selected variables on migration across euro zone and non-euro zone countries.

The equation below shows an interpretation of the multiple regression model with the inclusion of the variables that have been employed into the analysis.

$$\text{Mig}_t = \alpha + \beta_1 \text{GDP}_t + \beta_2 \text{Bonds}_t + \beta_3 \text{Inflation}_t + \beta_4 \text{Debt to Gdp ratio}_t + \beta_5 \text{Central Government Debt}_t + \beta_6 \text{Imports of Goods}_t + \beta_7 \text{Unemployment}_t \quad (2)$$

where t takes values from 1990 up to 2012.

Within this part of study we will make an attempt to interpret the results we extracted during the empirical analysis. In addition, we will examine the period after the creation of the EMU among the 3 groups of countries consisting of Weak EMU, Strong EMU and Non – EMU countries<sup>9</sup>. As a consequence, we employed a cross – sectional analysis by using OLS model, in order to succeed a consistent empirical analysis.

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<sup>9</sup> Weak EMU countries: Greece, Ireland, Italy, Portugal, Spain. Strong EMU countries: Austria, Belgium, France, Germany, Netherlands. Non EMU countries: Denmark, Norway, Sweden, Swiss, UK

### **3.4. Results of the multiple regression model**

In order to interpret the analysis, for the whole period of data, we investigate the behaviour of each economic and social variable for every group of countries. Table 3.1, Table 3.2 and Table 3.3 illustrate some descriptive statistics, such as the mean, the standard deviation and the maximum - minimum number of observations for each variable, considering each group of countries that may be fruitful in order to accomplish a general idea for the behaviour and the differences among each variable during the abovementioned period and for each group of countries.

Figure 3.1 reveals how the GDP growth rate varies throughout the three groups of countries. It is indicated that the Weak EMU countries have low growth rates at 1.77%, while the Strong and Non - EMU countries experience higher rates at 1.87% and 1.94% respectively. These results show that the three country - groups have different behaviour regarding the growth perspectives, something that may affect their future economic position and development.

Figure 3.2 reveals the mean 10-year government bond yield that reveals that the bond yields for the weak EMU countries are 7.19%, while strong EMU countries and Non- EMU countries present approximately similar rates at 5.23% and 5.28% respectively. These results suggest that there are higher rates of instability in weak EMU countries, due to the fact that there are more exposed to the economic recession, something that leads to higher rates of default and liquidity risks, which according to Baldacci and Kumar (2010) are the most significant ingredients of high government bond yields.

In addition, Figure 3.3 shows the inflation rates of each country - group for the determined period. Specifically, the graph suggests that Weak EMU countries have higher inflation rate at 3.94%, while strong EMU countries have 2.10% and Non EMU 2.15%. This outcome indicates that these countries did not fully satisfy the ECB's stability measures for 2% inflation rates.

Figure 3.4 shows the debt to GDP ratio for each group of countries that has been employed during the analysis. It is obvious that within the selected time period the Weak EMU countries have higher debt levels than the strong countries at 77.51% and 71.82% respectively. This outcome reveals that there is a difference in the debt levels of Euro zone. In addition, it is important to observe that Non - EMU countries are financially better than EMU members as they show lower debt levels at 53.25%, something that shows that these countries

are less affected during the period of crisis.

Additionally, Figure 3.5 indicates the mean of the central government debt. It is clearly shown that the central government debt for the weak EMU countries is much higher (76.71%) than in the other two groups, where in the strong EMU countries is 65.88% and in Non - EMU countries 43.33% respectively. These outcomes reveal that the weak EMU countries (Portugal, Italy, Ireland, Greece and Spain) have higher debts than the other two groups and are definitely more affected by the financial crisis.

Figure 3.6 presents the Natural Logarithm of Imports of goods for each group of countries. It can be implied that the weak EMU countries experience lower rates of import of goods at 25.21%, while the strong EMU and Non - EMU countries show higher rates at 26.38% and 25.67% respectively. From this result we can obtain that due to high rates of public and central government debt in PIIGS (weak EMU countries) especially through the sovereign debt crisis, the trade in this region has been negatively affected, since they experienced severe impacts through imports of intermediate goods.

Moreover Figure 3.7 shows that the unemployment rates among the three countries - groups. More specifically, it is more than obvious that there is a high difference among the weak EMU countries and the other groups, since in PIIGS, we can observe 10.55% unemployment rate, while in strong EMU and Non - EMU countries we can observe unemployment rates at 7.08% and 5.45% respectively. This suggests that the high unemployment rate of weak EMU countries can influence a wide range of economic and social phenomena, such as migration flows.

As a consequence, from all the above we can observe that the weak EMU countries have worse rates within their variables for the selected period. This is due to the fact that they experienced higher exposure in financial crisis. Finally, it is indicated that the strong EMU and Non - EMU countries behave in a similar manner in the vast majority of their variables, smothering that reveal that EMU does not have such an important role to their financial behaviour.

As for the empirical analysis, first we compute the Pearson correlation matrix of our 7 variables which is shown in Table 3.4. We notice that we do not have correlation factor above 0.7. If some factor had correlation coefficient above 0.7, it would have shown strong

correlation, thus the factor should have been rejected from the analysis as highly correlated factor.

Our next step is to run the regression model, where the significance of each coefficient shows how it affects the migration of each country group. Tables 3.5, 3.6, 3.7 and 3.8 present the outcomes of the OLS regression model for Weak – Strong and Non EMU countries and include also the p values that illustrate the significance of each variable in the model.

As it appears in Table 3.5 from the OLS model of Weak EMU countries the most significant factors that affect migration are the GDP rate, inflation rate, 10 – years government bond yield and imports of goods, since they have a p – value lower than 5% significance level. In addition, it can be denoted from the coefficients that the GDP growth rate is positively related to migration by 16.688, as does the inflation rate and the Ln of import of goods by respectively 38.947 and 130.345. On the other hand the 10-year government bond yield is negatively related to the migration with significance at the 1% level. This means that if one unit of GDP growth increases, one unit of inflation rate increases, one unit of imports of goods increases and one unit of 10 year government bond yield decreases, then the inflow migration number increases by the abovementioned coefficients. The results are in accordance with our hypotheses for those significant variables.

In particular, we observe in Table 3.6 that imports of goods variable appears to be positively related to migration in almost every country of the group except Portugal, while the unemployment rate is positively associated with the phenomenon of migration in Spain and Greece with 26.914 and 103.625 respectively. This means that if one unit of unemployment rate increases, then the inflow of migration number will increase by the specific coefficient. Arango (2013) indicates that within the financial crisis there was an increase of migration, especially due to the higher rates of unemployment. Respectively, Triandafyllidou and Lazarescou (2009) show that the high unemployment rates affected significantly the migration flows. From the adjusted R-squared values we can see that financial factors explain a large variance of immigration flows.

Additionally, we can observe that Table 3.7 presents the empirical results of the Strong EMU countries. The OLS model suggest that debt to GDP ratio, 10 year – government



bond yield, unemployment rate, central government debt and Ln imports of goods are the most significant variables which influence the phenomenon of migration with important 15.152, -29.979, 24.711, -20.187 and 122.325 respectively (Table 3.5). These values show firstly that when debt to GDP ratio, unemployment rate and imports of goods increase, the migration inflow increase, while when 10-year government bond yield and central government debt decrease, migration rates rise. In the case of the central government debt, the relation we had hold in our hypothesis is not confirmed.

We re-examine now the relationship among the economic variables and migration in multivariate OLS regression analysis in Strong countries separately. In almost all of these regressions the variable of imports of goods is an important indicator, which is positive and statistically significant with migration (at the 1% level in Belgium and Germany, and at the 5% level in Netherlands respectively). In line with Genc et al, (2011) we suggest that there is significantly positive impact of imports of goods on immigration. In contrast there is no effect of imports of goods on migration in Austria.

Finally, Table 3.8 shows the outcomes regarding the Non – EMU countries. We observe that the debt to GDP ratio, 10-year government bond yields, unemployment rate and imports of goods are the most important factors that affect the migration inflows within Non – EMU countries (Table 3.5). It can be also denoted that the imports of goods behave similarly with the coefficient of Weak and Strong EMU countries, something that shows that is a variable that affect significantly the phenomenon of migration. In addition, it can be observed that the unemployment rate variable has a different behaviour regarding the coefficient of the strong EMU countries, which shows that Non EMU countries are not highly risky regions as where unemployment increases migration inflows decreases and vice versa.

As explained earlier the effect of these economic variables may not be equally significant for all the countries of our groups. We therefore run the regressions separately for every country. In this subsample of the Non – EMU countries we also reveal an interesting picture. The coefficient of central government debt is positive and statistically significant in Denmark (at 5% level) while it is negatively and statistically significant on migration (at 5% level) in Norway, Sweden and the UK. Accordingly, we observe that the import of goods in these countries is a variable that affect importantly the phenomenon of migration as it has also an analogous attitude with the coefficient of Strong EMU countries.

For the special case of Greece (Table 3.6) we can notice that GDP Growth Rate, Inflation, Debt to GDP, Imports of goods and unemployment are the five variables that are significantly related to the immigration flow in Greece with significance level of 5% for the GDP growth and the unemployment, 10% for the other 3 variables. GDP Growth Rate, Inflation, Imports of goods and unemployment are positively related as expected. However, Debt to GDP is negatively related, in contradiction with our prediction. This means that

Further, as stated in our methodological description in chapter 2, we inspected normality and collinearity.

We generated residuals with STATA and used the Shapiro-Wilk W test for normality for each of the regression. We obtained in all cases large p-values indicating that we cannot reject that residuals are normally distributed.

Moreover, we also checked multicollinearity by using the package COLLIN to compute variance inflation factors (VIF) for the variables. Table 3.10 shows that all VIF factors are under the tolerance level of 10, thus there is no need of further investigation about collinearity problems.

### **3.5. Discussion - Conclusions**

Within this first empirical chapter we obtained a great number of interesting outcomes about how the specific economic variables behave among the three different group of countries over the last 20 years. It should be also addressed that the time period of this observation was not only before, but also after the EMU creation, including the period of the financial crisis.

A question that arises from our findings is which country-group is more exposed to the economic recession and consequently to migration.

First, financial dependence leads to greater exposure towards the markets, Cetorelli and Gambera (2001), and thus creates relatively insecurity for individuals and decide to migrate in search of better economic conditions. In contrast, countries not included in the EMU, such as the United Kingdom, Norway and Sweden are in better financial situation as they are not that exposed to high levels of uncertainty, Klepsch and Wollmershouser (2011).

Second, some of our employed economic variables, such as GDP ratio,

unemployment rate and imports of goods are strongly related to the phenomenon of migration especially within Strong and Non EMU countries. Our findings are new to the literature. However, there are indications of these outcomes in previous work on the subject. Although we cannot immediately compare our results to prior studies because previous findings did not accurately consider the effect of each economic variable and the migration flows from each country listing in our study.

Biagi et al, (2011) find that migration flows are associated with economic and social capital variables. Since individuals compare utility differences among alternative potential locations, a key driver in influencing migration pattern is the economic coefficients. Mayda (2010) also focuses on the impact of social and economic variables on the phenomenon of migration and shows positive associations between mean income, GDP per capita and increase of migration rates. Consequently, by contending countries vulnerability to the financial crisis we can identify and answer to our question that emerging economies with low financial sector complexity are more prone to recession and thus to increasing migration flows.

A general result that we revealed from our current analysis is that Weak EMU countries were significantly more exposed to the economic recession, something that consequently affected negatively the behaviour of each economic variable. On the other hand, we can observe that Strong and Non – EMU countries were not so exposed to the economic recession and were in a better financial position than the Weak group. This outcome indicates that the countries that are not included in the EMU are in a better economic situation because they are more independent regarding the monetary policy, something that does not exist within the Euro zone.

Considering now the cross - sectional analysis we can detect that one significant result is that the GDP growth rate, inflation and the imports of goods are positively related to migration, while on the other hand the 10-year government bond yield is negatively affiliated to the phenomenon, confirming our hypotheses. This is due to the fact that countries that belong to the PIIGS are exposed to high levels of uncertainty, something that consequently leads to the outcome that Strong EMU and Non – EMU countries are according also to Klepsch and Wollmershouser (2011) a safer investment for a person who wants to migrate.

In addition, we can observe that debt to GDP ratio, unemployment rate and imports of goods are positive related to migration in Strong EMU countries and increase as the inflows elevate. Finally, we can denote that unemployment rate is a significant variable that affects the phenomenon of migration during the whole period of the analysis. It was indicated also that in the two of the three country groups, high unemployment rates are considered to be significant factors that influence migration.

In response to the hypotheses raised in the introduction, the findings of this chapter imply that certain of the economic determinants do influence the phenomenon of migration within the European countries we study. The existing literature identifies in a great extent, the vast majority of the variables on the phenomenon and we identify that our factors are more significant in Strong and Non EMU countries. Overall, this chapter resolves a long – standing puzzle of the relations between economic factors and migration that is an important socioeconomic issue.

It contributes and extends three strands of the literature on the phenomenon of migration. First, it provides new evidence on the effect of the economic determinants on migration, which shed light on the puzzling and limited evidence found in prior work on the subject. Sirceci et al, (2012) and De Haas and Natter (2015) document that economic and social variables, such as unemployment and inflation may affect individuals to migrate to more prosperous destination areas. Second our chapter offers new insights on the key role of selected economic variables that do affect the phenomenon of migration, especially in terms of the recent economic recession.

In addition, we present results extracted from a database with detailed information on the factors that influence the migration process in 15 European countries. Second, to our knowledge this is the first attempt that precisely makes an endeavour for an in – depth understanding of the factors, which play a crucial role in the evaluation of the phenomenon. Third, the present chapter offers new insights on the migration figures, as until now there were limited to the countries of the British Commonwealth, while now we also provide detailed information for regions outside the Commonwealth.

Our findings have important implications in the international academic community. For instance, we provide a direct comparison among the factors that influence the migration

process in the euro zone countries. In addition, as the current financial framework on migration is quite limited, we provide the incentive for researchers to build it up and seek for more data on human migration in the future.

**Table 3.1: Descriptive Statistics – Weak EMU (PIIGS)****Weak EMU (PIIGS)**

The table presents results of the descriptive statistics of the economic variables for the Weak EMU group of countries over the period 1990 – 2012. The table sets forth the mean, the standard variation and the maximum – minimum of the observation for each variable.

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Inflow Migration	102	168,764	212,062	3,298	920,534
Outflow Migration	42	49,811	88,420	76.00	336,676
GDP Growth Rate (%)	115	1.77	2.75	-7.10	5.94
10-Years Government Bond Yield, December (%)	112	7.19	4.06	3.32	23.30
Inflation Rate (%)	115	3.94	3.43	-1.71	20.40
Debt to GDP ratio (% GDP)	115	77.51	34.51	23.80	170.62
Central Governmental Debt (% GDP)	107	76.71	35.09	19.80	136.90
Ln Imports of Goods	99	25.21	1.00	23.67	27.21
Unemployment rate (%)	115	10.55	4.87	3.70	24.24

**Table 3.2: Descriptive Statistics – Strong EMU**

The table presents results of the descriptive statistics for the Strong EMU countries. The mean is the average of all or measurements divide by the number of the observations. The standard deviation is the average degree to which our scores deviate from the mean. The minimum is the value that is less than all the other values in our database, while the maximum is the data value that is the highest than the others in our dataset.

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Inflow Migration	110	212,765	263,353	48,410	1,207,602
Outflow Migration	88	167,710	225,401	20,397	710,240
GDP Growth Rate (%)	115	1.87	1.79	-5.13	5.30
10-Years Government Bond Yield, December (%)	115	5.23	1.89	1.50	10.00
Inflation Rate (%)	115	2.10	0.93	-0.01	5.10
Debt to GDP ratio (% GDP)	115	71.82	22.36	35.20	134.20
Central Governmental Debt (% GDP)	105	65.88	24.17	19.40	124.70
Ln Imports of Goods	100	26.38	0.83	24.84	28.10
Unemployment rate (%)	115	7.08	2.60	2.10	12.60

**Table 3.3: Descriptive Statistics – Non-EMU**

The table presents results of the descriptive statistics analysis of the variables employed for the Non – EMU countries. A general outcome that we have obtained from this analysis is that this specific group was importantly more exposed to the economic crisis than the other two.

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Inflow Migration	110	100,273	114,840	15,051	459,000
Outflow Migration	110	46,816	50,541	4,561	243,000
GDP Growth Rate (%)	115	1.94	2.10	-5.67	6.56
10-Years Government Bond Yield, December (%)	115	5.28	2.52	0.65	13.20
Inflation Rate (%)	115	2.15	1.71	-0.70	10.50
Debt to GDP ratio (% GDP)	115	53.25	19.10	27.54	107.50
Central Governmental Debt (% GDP)	111	43.33	19.27	12.30	101.20
Ln Imports of Goods	100	25.67	0.87	24.33	27.46
Unemployment rate (%)	115	5.45	2.24	1.70	10.70

**Table 3.4: Pearson Correlation Matrix**

This table lists the correlations among the 7 variables we have used in this chapter.

	<b>GDP Growth Rate (%)</b>	<b>10-Years Government Bond Yield (%)</b>	<b>Inflation Rate (%)</b>	<b>Debt to GDP Ratio (%)</b>	<b>Central Government Debt Total (% of GDP)</b>	<b>Ln Imports of Goods</b>	<b>Unemployment Rate (%)</b>
<b>GDP Growth Rate (%)</b>	1.0000						
<b>10-Years Government Bond Yield (%)</b>	-0.5797	1.0000					
<b>Inflation Rate (%)</b>	0.2533	-0.3167	1.0000				
<b>Debt to GDP Ratio (%)</b>	0.5408	-0.0409	0.6845	1.0000			
<b>Central Government Debt Total (% of GDP)</b>	0.1699	-0.1701	0.4251	0.6143	1.0000		
<b>Ln Imports of Goods</b>	0.2078	-0.4578	0.6906	0.6750	0.6353	1.0000	
<b>Unemployment Rate (%)</b>	0.6845	-0.5189	0.1271	0.5329	0.5473	0.3121	1.0000

**Table 3.5: Inflow migration WEAK EMU, STRONG EMU and NON-EMU Countries**

This table lists the variables used in the cross sectional regressions, the independent variables are: debt to GDP ratio, GDP growth rate, Inflation rate, 10-YGov't Bond Yield, Unemployment rate, Central government debt, Ln imports of goods, the t-statistics are robust for heteroskedasticity, t-values are in parenthesis. \*\*\* Significant at the one per cent level. \*\*Significant at five per cent level \*Significant at ten per cent level

<b>Panel A: OLS Regressions</b>			
	<b>WEAK EMU Inflow-mig.</b>	<b>STRONG EMU Inflow-mig.</b>	<b>NON-EMU Inflow-mig.</b>
Constant	-3.281*** (0.00008)	393.625*** (0.00002)	-3.553*** (0.000)
Debt to GDP ratio	1.771 (0.230)	15.152*** (0.000)	772.400** (0.0104)
GDP Growth Rate	16.688** (0.034)	-3.586 (0.602)	124.600 (0.958)
Inflation Rate	38.947*** (0.0007)	25.201 (0.260)	-677.1 (0.876)
10-Years Government Bond Yield	-23.621*** (0.009)	-29.979*** (0.001)	11.103*** (0.001)
Unemployment rate	996.600 (0.815)	24.711*** (0.00008)	-12.471*** (0.00013)
Central Government Debt	473.700 (0.798)	-20.187*** (0.000)	776.900* (0.0607)
Ln Imports of Goods	130.345*** (0.00005)	122.325*** (0.0004)	140.322*** (0.000)
Observations	115	115	115
Adjusted R-squared	0.428	0.745	0.801
<b>Panel B: Bootstrapping Regressions</b>			
	<b>WEAK EMU Inflow-mig.</b>	<b>STRONG EMU Inflow-mig.</b>	<b>NON-EMU Inflow-mig.</b>
Constant	-30,074*** (0.000)	-15,856* (0.093)	-27,267*** (0.000)
Debt to GDP ratio	-224.852 (0.904)	11,940.800*** (0.000)	454.300 (0.210)
GDP Growth Rate	5,342.85 (0.521)	3,347.90 (0.689)	1,015.00 (0.692)
Inflation Rate	25,367.5* (0.099)	-11,868.0 (0.502)	-9,688.0* (0.054)
10-Years Government Bond Yield	-12,129.4 (0.313)	-14,890.0 (0.363)	15,372.0*** (0.000)
Unemployment rate	-872.248 (0.887)	14,604 (0.234)	-9,331** (0.017)
Central Government Debt	3,219.24 (0.151)	-14,911.00*** (0.000)	-305.16 (0.563)
Ln Imports of Goods	11,496*** (0.000)	71,677* (0.070)	10,915*** (0.000)
Observations	115	115	115
Adjusted R-squared	0.288	0.479	0.507



**Table 3.6: Results WEAK EMU**

This table lists the variables used in the cross sectional regressions, for the Weak EMU countries, the independent variables are: debt to GDP ratio, GDP growth rate, Inflation rate, 10-YGov't Bond Yield Unemployment rate, Central government debt, Ln imports of goods, the t-statistics are robust for heteroskedasticity, t-values are in parenthesis. \*\*\* Significant at the one per cent level. \*\*Significant at five per cent level \*Significant at ten per cent level

<b>Panel A: OLS Regressions</b>				
	<b>Spain</b>	<b>Greece</b>	<b>Italy</b>	<b>Portugal</b>
	<b>Inflow-mig.</b>	<b>Inflow-mig.</b>	<b>Inflow-mig.</b>	<b>Inflow-mig.</b>
Constant	-6.071*** (0.004)	-8.287** (0.026)	325,262 (0.757)	681,515* (0.069)
Debt to GDP ratio	5,472 (0.382)	-11,117* (0.083)	3,611 (0.434)	1,638*** (0.00005)
GDP Growth Rate	4,393 (0.664)	48,776** (0.048)	-5,314 (0.592)	-704 (0.615)
Inflation Rate	-10,320 (0.670)	36,602* (0.054)		2,105 (0.648)
10-Years Government Bond Yield	2,984 (0.875)		-24,931** (0.044)	-2,363 (0.474)
Unemployment rate	26,914** (0.020)	103,625* (0.059)	-22,135 (0.391)	-6,591 (0.132)
Central Governmental Debt	-9,816** (0.0183)	7,742 (0.350)	-4,662 (0.306)	-441.5 (0.451)
Ln Imports of Goods	269,922*** (0.001)	309,325* (0.085)	16,561 (0.681)	-26,803* (0.096)
Observations	21	13	22	20
Adjusted R-squared	0.943	0.721	0.747	0.795
<b>Panel B: Bootstrapping Regressions</b>				
	<b>Spain</b>	<b>Greece</b>	<b>Italy</b>	<b>Portugal</b>
	<b>Inflow-mig.</b>	<b>Inflow-mig.</b>	<b>Inflow-mig.</b>	<b>Inflow-mig.</b>
Constant	1,214.36** (0.022)	-77,972.00** (0.042)	630.57 (0.534)	-65,804.00* (0.060)
Debt to GDP ratio	7.180 (0.297)	-5,779.100 (0.507)	4.980 (0.282)	221.410 (0.467)
GDP Growth Rate	-15.969 (0.603)	51.176 (0.192)	1.459 (0.943)	-1,338.200 (0.197)
Inflation Rate	29.022 (0.738)	20.224 (0.594)	14.369 (0.833)	838.750 (0.606)
10-Years Government Bond Yield	-49.284 (0.271)	8.979 (0.687)	-24.960 (0.333)	492.460 (0.717)
Unemployment rate	-17.596 (0.360)	32.681 (0.489)	-55.359 (0.207)	-1,263.850 (0.575)
Central Governmental Debt	-14.402* (0.086)	8.724 (0.314)	-2.359 (0.827)	-147.940 (0.783)
Ln Imports of Goods	28,938** (0.035)	28,773** (0.042)	29,016** (0.028)	27,520* (0.058)
Observations	22	23	23	23
Adjusted R-squared	0.758	0.6041	0.6420	0.727

**Table 3.7: Results STRONG EMU Countries**

This table lists the variables used in the cross sectional regressions for Strong EMU countries the independent variables are: debt to GDP ratio, GDP growth rate, Inflation rate, 10-YGov't Bond Yield, Unemployment rate, Central government debt, Ln imports of goods, the t-statistics are robust for heteroskedasticity, t-values are in parenthesis. \*\*\* Significant at the one per cent level. \*\*Significant at five per cent level \*Significant at ten per cent level

<b>Panel A: OLS Regressions</b>				
	<b>Austria</b> <b>Inflow_mig</b>	<b>Belgium</b> <b>Inflow_mig</b>	<b>Germany</b> <b>Inflow_mig</b>	<b>Netherlands</b> <b>Inflow_mig</b>
Constant	-374,979 (0.163)	-1.513*** (0.00004)	1.306*** (0.00001)	-522,125* (0.0539)
Debt to GDP ratio	694 (0.758)	1,154*** (0.00245)	34,725*** (0.00128)	2,669** (0.0148)
GDP Growth Rate	-998.6 (0.409)	-1,823.0* (0.0516)	-14,567.0** (0.0145)	-768.3 (0.408)
Inflation Rate	8,985*** (0.00429)	-456 (0.783)	139,037*** (0.00122)	6,217** (0.0345)
10-Years Government Bond Yield				-5,081 (0.203)
Unemployment Rate	8,778 (0.120)	-2,555** (0.0427)	-37,297*** (0.000147)	-5,743** (0.0457)
Central Governmental Debt	348 (0.808)	-1,180*** (0.00122)	-21,756** (0.0119)	-1,240 (0.166)
Ln Imports of Goods	13,303 (0.154)	61,416*** (0.00001)	-495,915*** (0.00003)	21,055** (0.0304)
Observations	22	22	22	22
Adjusted R-squared	0.389	0.930	0.859	0.591
<b>Panel B: BootstrapPng Regressions</b>				
	<b>Austria</b> <b>Inflow_mig</b>	<b>Belgium</b> <b>Inflow_mig</b>	<b>Germany</b> <b>Inflow_mig</b>	<b>Netherlands</b> <b>Inflow_mig</b>
Constant	-77,285.00 (0.395)	222.70*** (0.003)	767.38 (0.305)	60.92* (0.067)
Debt to GDP ratio	1,949.600 (0.589)	1.562 (0.470)	-27.191 (0.317)	4.587* (0.071)
GDP Growth Rate	122.690 (0.978)	-1.601 (0.572)	-5.990 (0.733)	-.155 (0.959)
Inflation Rate	7,982.640 (0.367)	1.727 (0.803)	23.374 (0.627)	2.470 (0.745)
10-Years Government Bond Yield	5,228.020 (0.747)	-7.638 (0.356)	23.538 (0.611)	-10.726* (0.960)
Unemployment Rate	18,579.800 (0.387)	-1.114 (0.872)	-23.025 (0.298)	-9.774* (0.063)
Central Governmental Debt	-171.280 (0.955)	-2.641 (0.173)	40.566 (0.262)	-2.793 (0.208)
Ln Imports of Goods	24,325 (0.407)	25,948 (0.314)	24,938 (0.538)	29,472* (0.068)
Observations	22	22	22	22
Adjusted R-squared	0.422	0.641	0.600	0.392

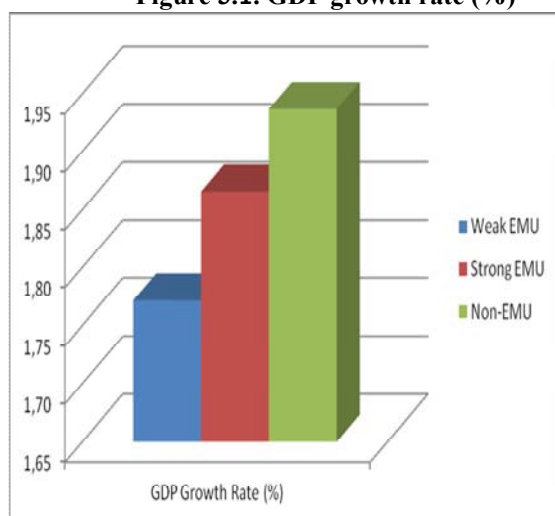
**Table 3.8: Results NON-EMU Countries**

This table lists the variables used in the cross sectional regressions for Non EMU countries, the independent variables are: debt to GDP ratio, GDP growth rate, Inflation rate, 10-YGov't Bond Yield, Unemployment rate, Central government debt, Ln imports of goods the t-statistics are robust for heteroskedasticity, t-values are in parenthesis. \*\*\* Significant at the one per cent level. \*\*Significant at five per cent level \*Significant at ten per cent level

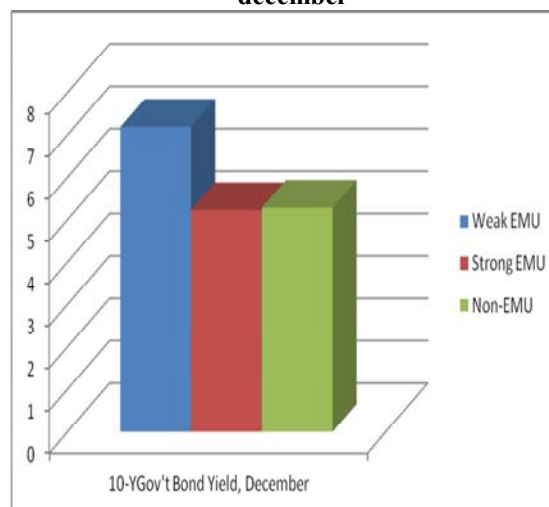
<b>Panel A: OLS Regressions</b>					
	<b>Denmark</b>	<b>Norway</b>	<b>Sweden</b>	<b>Swiss</b>	<b>UK</b>
	<b>Inflow_mig</b>	<b>Inflow_mig</b>	<b>Inflow_mig</b>	<b>Inflow_mig</b>	<b>Inflow_mig</b>
Constant	-774,366*** (0.001)	-825,236*** (0.0002)	-182,692 (0.573)	-1,330*** (0.001)	-6,836*** (0.00002)
Debt to GDP Ratio	108.8 (0.126)			-162.4 (0.574)	5,639 (0.104)
GDP Growth Rate	-481 (0.208)	-2,272*** (0.0084)	99 (0.926)	-2,895** (0.037)	-3,830 (0.186)
Inflation Rate	-362.8 (0.872)	-968.3 (0.414)	441.0 (0.812)	1,470.0 (0.726)	14,237.0** (0.027)
10-Years Government Bond Yield	1,621 (0.162)	226 (0.867)	1,021 (0.556)	3,473 (0.580)	-10,668 (0.137)
Unemployment Rate	-771 (0.391)	116 (0.962)	5,507** (0.0117)	-7,442 (0.181)	-10,882 (0.138)
Central Government Debt	406.2** (0.0395)	-381.8** (0.030)	-1,036.0** (0.0157)	-352.8 (0.606)	-5,033.0** (0.0423)
Ln Imports of Goods	30,524*** (0.0010)	35,220*** (0.0001)	9,916 (0.428)	57,125*** (0.0002)	268,89*** (0.00001)
Observations	22	22	22	22	22
Adjusted R-squared	0.690	0.890	0.715	0.793	0.963
<b>Panel B: Bootstrapping Regressions</b>					
	<b>Denmark</b>	<b>Norway</b>	<b>Sweden</b>	<b>Swiss</b>	<b>UK</b>
	<b>Inflow_mig</b>	<b>Inflow_mig</b>	<b>Inflow_mig</b>	<b>Inflow_mig</b>	<b>Inflow_mig</b>
Constant	25.20 (0.145)	-860.64 (0.014)	89.69** (0.024)	354.40*** (0.006)	602.22 (0.002)
Debt to GDP Ratio	-.006 (0.970)	.604 (0.520)	-1.159 (0.476)	-1.301 (0.209)	14.185 (0.431)
GDP Growth Rate	-.620 (0.702)	-1.378 (0.344)	-1.005 (0.658)	-3.422 (0.401)	-3.868 (0.875)
Inflation Rate	3.975 (0.422)	-.927 (0.710)	1.399 (0.735)	7.036 (0.462)	39.096 (0.317)
10-Years Government Bond Yield	-2.382 (0.263)	1.015 (0.671)	-.352 (0.922)	-25.470* (0.059)	-43.268 (0.116)
Unemployment Rate	1.143 (0.619)	-3.504 (0.371)	5.695* (0.052)	-24.747** (0.042)	-41.881 (0.217)
Central Government Debt	-.055 (0.876)	-1.133 (0.272)	-.203 (0.849)	-1.124 (0.712)	-10.491 (0.453)
Ln Imports of Goods	1,005.45 (0.045)**	-860.64*** (0.009)	-973.60** (0.034)	354.39*** (0.006)	256.17 (0.004)
Observations	22	22	22	22	22
Adjusted R-squared	0.690	0.789	0.618	0.468	0.740

**Table 3.9: Graphs of variables for each group of countries (Weak EMU, Strong EMU, Non-EMU)**

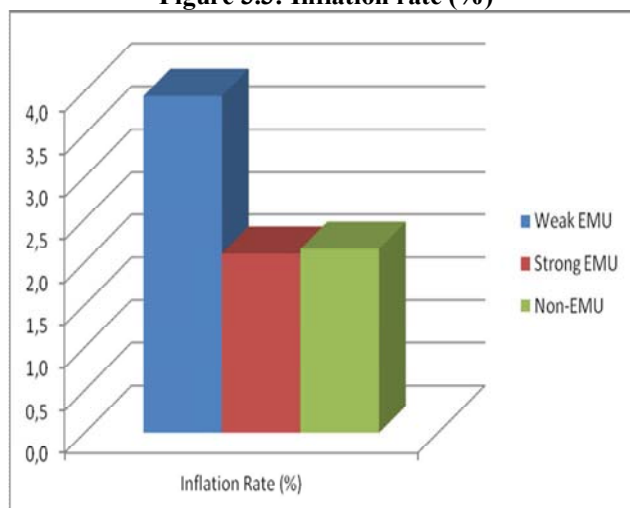
**Figure 3.1: GDP growth rate (%)**



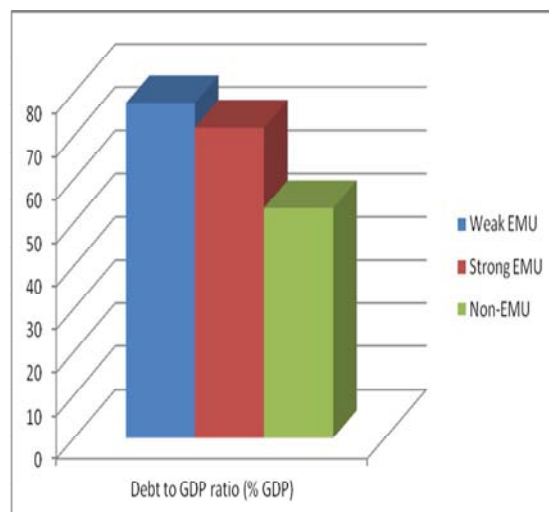
**Figure 3.2: 10-Years Government bond yield, december**



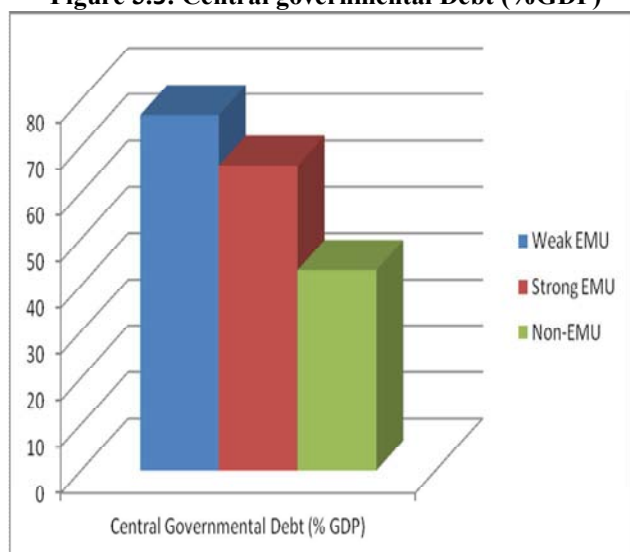
**Figure 3.3: Inflation rate (%)**



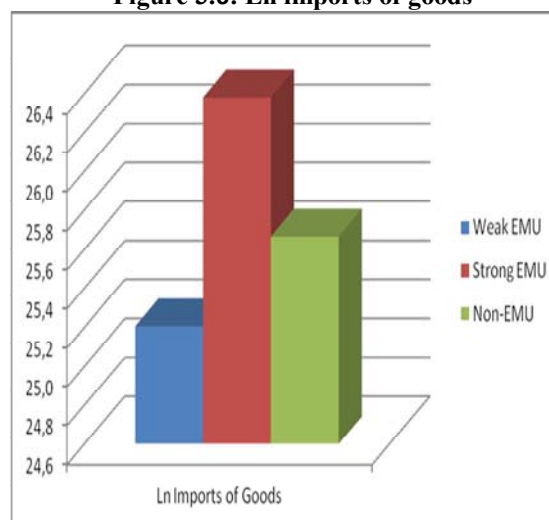
**Figure 3.4: Debt to GDP ratio (%GDP)**



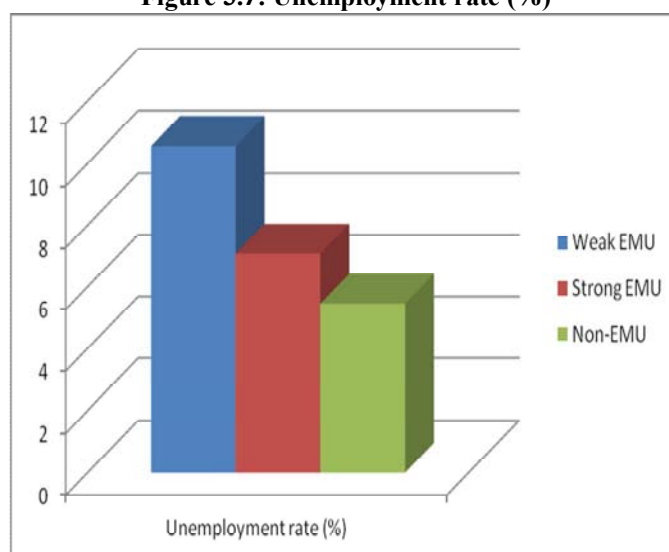
**Figure 3.5: Central governmental Debt (%GDP)**



**Figure 3.6: Ln imports of goods**



**Figure 3.7: Unemployment rate (%)**



**Table 3.10: Collinearity diagnostics**

This table gives the results of the collinearity diagnostics using the 'collin' command of STATA's package.

Variable	VIF	1/VIF
GDP Growth Rate (%)	1.04	0.961538
10-Years Government Bond Yield (%)	2.11	0.473934
Inflation Rate (%)	1.51	0.662252
Debt to GDP Ratio (%)Companies	1.16	0.862069
Central Government Debt Total (% of GDP)	2.36	0.423729
Ln Imports of Goods	4.06	0.246305
Unemployment Rate (%)	1.40	0.714286
Mean VIF	1.95	

## **CHAPTER 4. A socioeconomic explanation of the phenomenon of emigration in Greece**

### **4.1. Introduction**

In the sequence of 2008 the financial recession spread from the USA to almost the whole world. Whilst crises are part and parcel of the global economic system Sikeci et al., (2012) a great number of individuals were challenged as their employment began to disappear. Similar to political and environmental disasters, the recent financial crisis had a strong influence to human insecurity and uncertainty, thus migration was one of the main strategic responses, (Migration Letters. 2010).

The financial crisis that Greece is experiencing since 2009, led to increased tax levels and high unemployment rates something that resulted in significantly high amounts of human mobility to more affluent regions in the world, Jauer et al (2014). Greek nationals decide to choose migration as an adjustment mechanism in the wake of economic downturn, in order to face the financial shocks of its country. Even though Greece used to be a traditional emigration country since the end of the 19<sup>th</sup> century it then became an immigrant one in the last two decades of the 20<sup>th</sup> century. Nowadays due to the impact of the crisis the country experiences once more an expansion in emigration flows especially in regions that the recession hit lower Elsner and Zimmermann (2013). A similar conclusion has been reached by Lianos and Cavounidis (2012) who indicated that lower wages and higher unemployment rates in Greece motivated Greek nationals to migrate to more prosperous destinations in order to alter their financial and social conditions.

The current chapter is related to the literature regarding the financial and social determinants that motivated Greek nationals to leave their country and emigrate to wealthier destinations during the time of crisis. In particular, De Grauwe (2009); Hoffmann (2013 ); indicate the relationship of the central government debt with the phenomenon of migration. Additionally, Acharya and Schnabl (2013) and Portes (2009) specify that the current financial downturn created imbalances especially in Southern European countries' cash surpluses. These imbalances affected significantly the capital flows of a country's economy and create a fragile economy with persistent high rates of unemployment, something that explains the decision of Greek nationals to migrate to regions with elevated cash surpluses.

Other studies that analyze the financial and social determinants which influence migration are: Bowden and Posch; Ebner (2011); and Reinhart and Rogoff (2011). Lastly, Gibson et al (2014) suggest that several financial and social factors are strongly correlated with the economic downturn and lead to adverse social shocks, such as massive migration outflows of Greek nationals. In fact, they report that specific financial factors, such as low cash surplus, high inflation rates, and high tax revenues have a significant impact on labour migration, as Greek nationals decide to seek for better employment opportunities abroad.

After the financial boom in Greece, especially during 2005 – 2007, the most dramatic financial crisis unfolded with a great speed from the United States, Reinhart and Rogoff (2010). Specifically, except of the overwhelming increase in the public debt and the decrease of the private one, which forced governments to bail out problematic banks and follow severe fiscal and monetary policies in order not to fall in deepest recession, Kouretas and Vlamis (2010); Mody and Sandri (2012) the debt crisis had significant implications on the social coherence of Greece. The current downturn produced low wage labour, which had affected productivity, Cholezas and Tsakloglou (2008). As a result, migration inflows to Greece have been reduced due to the deterioration of economy, while the emigration of natives to more prosperous countries has increased, Cholezas and Tsakloglou (2008). This brings to the surface some very appealing questions.

- i. Is the level of financial and social instability in Greece a suitable proxy for emigration connectedness? If yes do financial, social and institutional factors affect strong enough Greek natives to require significantly improved quality of life abroad?
- ii. Further how do the coefficients employed affect on emigration valuation?
- iii. Finally on which groups of the predetermined factors should emigration flows be targeting at?
- iv. After all are there factors that can ideally describe the impact of emigration in Greece?

Interested in the prevailing volume of the academic and policy suggestions on the current study we concentrate on these questions and scrutinize the effect of the fundamental determinants and the phenomenon of emigration from Greece. We use a large and comprehensive sample of 14 financial and social variables in Greece from 1990 – 2012, in

order to seek how these factors affect emigration in Greece.

The current study makes significant contribution to the existing literature on the phenomenon of emigration in Greece. First of all, it provides new evidence on the impact of the financial and social factors on emigration, which shed light on the limited evidence, found in prior work on the subject. Particularly, we find that the employed factors do affect the Greek natives' decision to emigrate and seek employment abroad during the financial crisis. Furthermore, in the current chapter we present results extracted from our database with detailed information on the determinants that affect the emigration process in Greece. Additionally, within the present chapter we offer a first attempt to comprehend the factors, which play an important role in the evaluation of the phenomenon.

Our findings have important inference in the academic society, as we provide a research during the complex fiscal situation in Greece among the determinants that play a crucial role in the emigration process of the country. Furthermore, as the financial and social literature on emigration of Greek natives is limited, the current study provides a considerable insight for researchers to extend it in the future and enrich it with more data on Greek emigration.

The current chapter is informed by the work of Louizis et al., (2012); Christodoulou and Christodoulou (2013); Economou et al., (2014) who empirically examined the relationship among some financial and social variables with the economic recession. We seek to update their work by proposing a new, comprehensive sample of Greek data extracted from imperative and accurate organizations' databases and offer new evidence on the correlation of these factors with the phenomenon of emigration in Greece. Employing a database with factors clarification is helpful for understanding and commenting the causes instruments that have all received attention in the wake of the crisis but have largely been studied in isolation.

The financial crisis hit severely Greece after November 2009, Labrianidis and Vogiatzis (2013b), when the country became the “epicenter of global capitalism attracting headlines all over the world” Hadjimichalis (2011). Crotty (2009); De Grauwe (2010b); Nelson et al., (2011); Varoufakis (2011) indicate that the liberation of financial markets encouraged Greek governments to acquire low risk loans, something that resulted in high



levels of external debt and extensive financial measures and pressures Christodoulakis (2010). Unavoidably, this situation, which concluded into the economic crisis in Greece with high rates of account deficits, resulted in an extended internal economic and social weakness and had a negative impact on the country's development and competitiveness Labrianidis and Vogiatzis (2013a). As a result the Greek manufacturing and construction sectors became less competitive in the international market and led to negative trade balances during 2008-2011, Labrianidis and Vogiatzis (2013a). Thus, as the business units became less capable to invest into new human capital and consequently unemployment rates raised Martin (2009a), this contributed to the development of Greek nationals' emigration.

The rest of the chapter is structured as follows. In section 4.2 we make a small historic and social review on the evolution of migration in Greece while in section 4.3 we describe literature explaining the causes of the Greek Crisis and in section 4.4 the transformation of migration patterns in Greece during the economic crisis. According to the literature review in section 4.5 we select the variables that we will use for the regression analysis of this chapter and state our main regression hypotheses (hypotheses about the regression's coefficients, thus about the relation of each independent variables with the migration flow). In section 4.6 we relate the general analysis plan of Chapter 2 with our chapter and present our results in section 4.7 and finally conclude this chapter with the discussion section 4.8.

## **4.2. Historic and Social Evolution of migration in Greece**

According to Kasimati (2006), Greece has been from the early years of its establishment an emigration country, from which people decided to migrate in order to alter their lives, mainly to the Black Sea, the countries of the Soviet Union, Western Europe and later to the USA and Australia. Two have been the most important waves within the Greek migration history. In both cases the reasons were financial. The first early financial crisis took place in 1893, as the external debts that Greece obtained, involved outright default on payment, nonpayment and refutation Camerer and Lovallo (1999); Reinhart and Rogoff (2011) something that led the country out of the international capital markets for approximately half century Fostel and Geanakoplos (2008). The second financial crash goes to Greece between 1950 and 1974, when a large increase in bankruptcies and non-performing loans stain the beginning of the crisis Jeanne (2009) and brought about many crucial social and financial changes that led to an increase of foreign immigration in Europe. Already, some countries (i.e. Switzerland, Great Britain, Germany, and France) during the 70s, in an effort

to eliminate the phenomenon, closed their borders and thus new centers of migration had been created, among others have been Greece.

Specifically, within our historic review of the phenomenon of migration in Greece since the beginning of 20<sup>th</sup> century, we notice that during 1900 and 1975 period, Greece can be characterized as an emigration country, while the migration inflows were much less, due to the wars from Asia Minor and Egypt, Gropas and Triandafyllidou (2009). In particular, the first wave of migration was driven by the financial crisis of 1893, followed by the rapid decline in the price of raisin market, which was the largest export product of the country. Thus, within the period 1890 - 1914 one sixth of the Greek population decided to abandon Greece and emigrate to the U.S and Egypt. Nonetheless, this type of migration was encouraged by the Greek authorities that considered the immigrant remittances an important help in order to improve their payment balances, Fakiolas and King, (1996).

After the end of World Wars I, II and the Greek Civil War, from 1947 to 1949, Greece abandoned technological improvement, and it was almost impossible for Greece to absorb the necessary workforce. As a result, the high rates of unemployment became a crucial problem that affected Greece, with dramatic financial consequences, Siadima (2001). Unavoidably, the intensive migration outflows were the only solution. Between 1950 and 1980 the 12% of the Greek population emigrated to France, Belgium and Germany, Lianos and Cavounidis (2012). Greek population decided to emigrate as it was the only solution, and was equal with 3 very important results: Tackling the high rates of unemployment, use of Greek remittances to stabilize the payment balances and improvement of the immigrant skills, in order to use them later in Greek industry.

Initially, according to King (2000) the results were very encouraging as the demographic problem was almost solved, while the contribution of remittances improved significantly Greek economy. Nevertheless, King, (2000) indicates that many problems later emerged, as rural areas were abandoned because of the phenomenon of migration that led to serious labour shortages within the country. Furthermore, people who decided to migrate did not obtain in reality high technical skills in the industries of Europe, as the automatic production prevented them from showing their qualification.

After various important international and domestic events, such as the oil crisis of

1973 and the restoration of democracy in Greece in 1974, migration outflows have declined significant, while the inflows started growing with fast rhythms, Cavounidis (2013). Therefore, Greece stopped being an emigration country and transformed into an immigration one with inflows mainly from Eastern countries, Central Europe, Africa and Southern Asia, Gropas and Triantafyllidou (2009).

Since 1980, Greece experienced the largest immigration wave with the entrance of a great number of economic and political immigrants from Poland, Bulgaria and Romania. Migration inflows rose sharply towards the end of the decade with the collapse of the Soviet Union and then with the collapse of the Albanian economy in early 1990, Cavounidis (2013). Furthermore, with the legalization of the illegal immigrants in 1998, the vast majority of the immigrants was from the former socialist countries of central and Eastern Europe, with Albania, as a main country with a share of 65% of immigrants.

An important number of factors and structural characteristics indicate Greece as an attractive migration destination country, Robolis et al., (2007). First and foremost, the geographical position of Greece with borders that are hardly controllable, allows the access of migrants from neighboring countries. Moreover, as Greece is a crossroad between two continents, it is a bridge to other European countries. Regarding the financial situation of Greece at this period especially during the Olympic Games of Athens in 2004 and the high growth rates (4%) on average enhanced even more the immigration inflow.

In Table 4.2 we can observe that the percentages of the Greek natives' outflows are relatively the same from 2002 until 2006 (between 0.20% – 0.40%). In particular, as the Greek Economy grew by approximately 4% per year between 2003 and 2006 OECD (2013) due partly to the increased availability of credit, related to the Olympic Games of 2004, the percentages of Greek emigration outflows remained stable and did not affect the economic and social cohesion of the country. Nonetheless, we can detect that since 2007, the bursting of the USA housing bubble in the end of 2006, caused financial insecurities globally, Simkovic (2011) and augmented Greek natives' outflows. Specifically, from 2006 to 2007 the Greek outflows percentage increased 4 times (from 0.21% to 0.90%) and remained relatively stable until 2009, with 0.91% respectively.

On the whole, as a result of the global financial crisis that transformed the social and

economic landscape of Greece, the emigration of natives has expanded significantly. We can additionally indicate that there is a new rise of Greek outflows in 2010 and 2011 with 1.28% and 2.12% of the population respectively. This phenomenon was mainly a result of the deterioration of the labour market, which was unavoidably accompanied by a sharp increase in the unemployment rate and motivates Greek nationals to emigrate and seek for an enhanced future abroad.

As a result the stability and the economic prosperity of Greece created the necessary conditions for residence and employment within the immigrants' population. In addition, the relatively large number of small and medium firms and the developed agricultural sector created the conditions for the absorption of migrant labour as a cheap workforce. Further, the relatively weak legal framework regarding migration that was formed encouraged the migration inflows in Greece. Over the time, the majority of these undocumented migrants were eventually legalized in one of the three programs for regularization of unauthorized migrants that carried out in 1998, 2001 and 2005, Cavounidis (2013).

In addition, the economy in Greece experienced high growth rates (4% on average) during the last decade, primarily because of the large construction works related with the Olympic Games of Athens in 2004, Triandafyllidou and Lazarescu (2009). As a result, the labour demand in Greece altered from the model, which attracted migrants the previous years. Additionally, during the recent years there has been a demand for flexible labour in the highly seasonal economic sectors, such as construction and tourism, along with demand for domestic work. Nowadays, these sectors account for the vast majority of the immigrant employment in Greece. Before the financial downturn, and in particular in the second trimester of 2008, 51% of the foreign men in Greece was employed in construction, while the most significant employment sectors for women were services to households, Cavounidis (2012).

However, the financial crisis that hit severely Greece since 2009 resulted in lower levels in the Greek migration experience, Cholezas and Tsalkoglou (2008) which within few years altered the financial and social landscape of Greece. According to Cavounidis (2012) due to the economic crisis in Greece the migration inflows decreased radically, the flows of return migration have accelerated, while the emigration of Greek nationals has significantly expanded.

### **4.3. Causes of the Greek Debt Crisis**

The economic downturn led to a severe increase of public debt in a great number of developed economies, not only within the States, but also within the Euro zone, Kouretas and Vlamis (2010). According to Paul de Grauwe (2010b) the increase of the public debt has been the result of the governments' effort to reduce the private debt that gathered before the economic crisis. As the private debt increased, since the beginning of the crisis, the Greek governments were forced to assist problematic banks, while at the same time they captured high share of the debts of failing financial institutions, Kouretas and Vlamis (2010). As a result, many fiscal and monetary policies were adopted, alongside with the bailout schemes in order to decrease the total public debt but without noticeable results.

In 2008 Greece was the first country followed by Ireland, Portugal and Spain that requested financial support from the rescue support of IMF. According to Featherstone (2011), Greece should have met from the beginning “the convergence criteria of 3% of GDP “and as its public debt level has been significantly high and “it has fluctuated around the equivalent of 100% of GDP since 1993” should have not been allowed to join Euro zone.

Even though Greece was not the only country that did not fulfill the convergence criteria, nonetheless its governments from 2001–2009 did not put into practice strong economic policies in order to avoid further financial deteriorations, Arghyrou and Tsoukalas (2011). Similarly Kouretas and Vlamis (2010) suggest that the main responsibility for the Greek financial recession stands with the Greek governments and their weak political system that led to a dramatic mismanagement of the domestic economy. Thus Greece remained under market inspection as its spreads remained at significantly high rates something that led “to the creation of major asset price bubbles, flaws in the regulatory design and inadequate supervision, Maes and Iziljanski (2009).

It was the 2009 when the new socialist government revised the estimate of the government budget deficit and almost doubled the existing estimation of 6.7% of GDP to 12.7%. However, in reality, when the international credit crisis spread in 2009 “Greece’s record of low reform capacity was matched by inherited economic weakness that made Greece vulnerable. Thus, according to Nelson et al., (2011); Featherstone (2011), the Greek economy has locked competitiveness and sustained significant current account deficits in foreign trade and commerce. In particular, Eurostat has revised upward the Greek budget

deficit for 2009 and it has risen to 15.4% of GDP. As a result, this increased public disbursement led to a severe increase of borrowing requirements and extremely high rates of public debt. The level of central government debt according to Eurostat as of 31.12.2009 amounted to € 298.5 million. Government debt under public debt management represented 93% of the total central government debt outstanding, something that was a contributor factor of the financial crisis. Consequently, the 2009 global fiscal crisis raised fears and uncertainty in many developed countries, affecting thus employment and income opportunities of the natives. As a result, the global migration flows appeared to have been influenced by the currency effects in a search of a better future in destination areas Canuto and Giugale (2010).

Another important factor that contributed to the Greek financial recession was the decline of its international market competitiveness. According to Nelson et al., (2011) a main factor that affected the economic crisis in Greece was the high wages in relation with low productivity. (Oxford Economics. 2010) indicate that the wages in Greece have increased at a 5% annual rate since the country's adoption of euro, which was approximately the double of the average wage rate in the whole Euro zone. At the same time the Greek exports had an increase only at 3.8%, which was only the half the rate of those countries' imports from other trading partners (Oxford Economics. 2010). In particular Greece and its most important trading partners especially within the Balkan Peninsula were also hit by the economic recession, something that worsened the domestic financial situation.

Further, an additional contributing cause to the financial crisis in Greece was the increased access to capital, but with very low interest rates. Specifically, after Greece's adoption of the euro as its national currency in 2001, which allowed many investors to view the reliability of euro member regions with higher rates of confidence, this led some Euro zone countries, as well as Greece to continually borrow at more favourable interest rates, Nelson et al (2011). However, this benefit allowed Greece to mount up high levels of debt without being encouraged to manage its financial procedures with stability austerity and reform, without the financial assistance from the Euro zone members and the IMF.

The sovereign debt crisis in the Euro zone and in particular in Greece provoked a great number of implications, which changed the financial landscape of the country. The severe economic instability in Greece had contributed to a weakening of the social and financial stability. In particular, wage cuts, higher taxation and higher inflation rates were the

unavoidable results of the Greek debt crisis that hold the country far too low from the competitiveness within the euro zone. Additionally, the rising cost of living had progressively affected not only the immigrants of the country, but also by the native Greek citizens, Triandafyllidou and Lazarescu (2009).

As unemployment has risen from 8.3% in 2008, to 28.7% in the first trimester of 2014, and the main employment sectors of the country (construction, retail and tourism) experienced the recession more severely, this consequently affected the mobility of many Greeks who seek for a better future abroad Cavounidis (2013); Karanikolos (2013). Thus, the economic crisis in Greece appears to make a transition in the Greek migration experience, from immigration country that used to be 2 decades ago, to an emigration country once again.

#### **4.4. Transformation of migration patterns in Greece during the economic crisis**

The phenomenon of migration has been an important factor that could shape the economic and social background of Greece. The country used to be a traditional emigration region since the end of the 19<sup>th</sup> century, when it started becoming an immigrant in the last two decades of the 20<sup>th</sup> century. Prior the end of the first decade of the 21<sup>st</sup> century, Greece became an emigrant country once again. It is noticeable that prior, Greece did not experience a growing economy and a flushed labour market, something that had an initial minor impact on the migration flows to and from the country, Triandafyllidou and Lazarescu (2009). Similarly, Maroukis (2013b) report that employment is a main factor in order to understand migrants' mobility and comprehend how the recent financial recession affected migrant mobility strategies.

As crucial sectors of economic activity in Greece (i.e. construction and retail) started experiencing the financial crisis, Lianos (2008); Triandafyllidou and Lazarescu (2009), nonetheless, the recession in catering and internal tourism has been felt more deeply during the summer period with a reduction of approximately 20% in reservations – arrivals of tourists. Unavoidably the crisis to the crucial sectors of the Greek economy led to an increased unemployment, which brought subsequent challenges to the welfare regime and had a strong impact on the usual mobility patterns. In addition, since the beginning of the financial crisis, Greece did experience a period of “increasing social discontent and unrest, which was expressed rather massively and violently in the riots of December 2009 in Athens and other major Greek cities. Those events had a negative impact on the Greek society and

economy and consequently on migration flows.

Greece, since the onset of the economic crisis started experiencing alterations in the migration patterns. In particular first and foremost the country continues receiving a considerable number of unauthorized migration inflows that cannot be incorporated into wage work in the informal sector and a great expansion of the informal labour market. Even though during the economic recession in Greece there has been a decrease in the employment rates, this did not lead to a decline of the legal flows, Cavounidis (2013). Alike, Gropas and Triandafyllidou, (2009) indicate that although there was a negative economic climate in Greece with low wages especially for the unauthorized migrants (15-20 Euros), nonetheless, many immigrants with worse working conditions in their source countries have been motivated to establish themselves in Greece.

In Table 4.1 we can indicate that from 1995 until 2006 there was a continuous increase of the annual average wage in Greece. In particular, we can observe that in 1997 and 2002 we detect the highest percentages of the increase of the annual average wages with 13.48% and 11.34% respectively, while during the rest of the years we have an augmentation between 2% - 7.5%. Specifically even though Greece was a very small economy, nonetheless used to obtain high output and income per capita. As Greece was related with the two strong economies of the USA and China, was trying to follow their high standards of living and the high rates of imports – exports of goods Petrakis and Weeks (2011). However, from 2010 until 2013, the most crucial years of the fiscal crisis in Greece, there is a significant reduction of the annual average wages with the most significant in 2013 with 6.63%. Especially, following the eve of the crisis in 2009, Greece's high living standards had fallen back approximately 20%, provoking therefore a gap with the rest of the Western European countries as large as it had been in 1960s, Matsaganis (2013).

In particular, in 2008 approximately 280,000 irregular migrants from neighboring countries came in Greece. Accordingly, the Greek Labour Force survey in 2009 indicate that the legal immigrant flows have been reduced for the first time in the last 20 years, Triandafyllidou and Maroufouf, (2012), while Maroukis (2013b) reports that even though there was a significant reduction of the legal immigration population in Greece, there has been a significant increase in the informal migration inflows. Specifically, Cavounidis (2013) implies that the European Border Management Agency reports that there was an increase of



almost 50% of the illegal entries in Greece, increasing to 75% in 2009 and to 90% in 2010. Moreover, another important reason for the high rates of unauthorized inflows of migrants in Greece is the fact that its borders are not efficiently controlled, while on the other hand, there is a strong border control in the rest of Europe, Cavounidis (2013). In particular, Triandafyllidou and Maroukis (2012) suggest that only 1 in 10 of the irregular migrants who arrived in Greece between 2005 – 2011 managed to escape into Western Europe.

However, even though there has been a significant recent improvement regarding border protection, there was not a decrease in the inflows of the undocumented migration mainly due to the economic crisis Terzis and Delithanassi (2009). In particular, migration irregularity has been increased because of the recession as it became more difficult for immigrants to find employment in the formal sector with the reductions in the social security stamps and wages, Cavounidis (2012); Cavounidis (2013). The recent financial recession placed a significant number of illegal population into positions that are not corporate into wage – work and thus participate in their vast majority into illicit small – scale activities without obtaining all the necessary paperwork of formal employment.

As a result, it is impossible for them to receive formal permits as it seems that they are unemployed and cannot credit months of owed social security fees, Maroukis (2013a). As a consequence there is a differentiation considering the immigrant activities of recent migrants who arrived in Greece during the financial recession and those who used to be in the country from the past waves of immigrants and in their vast majority were officially employed in construction, manufacturing, agriculture and homes.

The impact of the economic crisis on migration began to seem evident in 2008, when there was a transformation of the landscape of migration flows in Southern Europe and especially in Greece, Bertoli et al, (2013). As the recent financial downturn in Greece led to a severe increase of public debt, this has significant implications in financial and social foundations, Kouretas and Vlamis (2010) with special focus on the Greek migration experience. Even though the migration inflows in Greece were not a new phenomenon, nonetheless, a large proportion according to Cavounidis (2012) could not cope with low wage work. As Greece due to the economic crisis could no longer provide a socially acceptable income to its employees consequently immigrants had fewer incentives to remain in the country, Belot and Ederveen (2011), the flows of return migration have significantly

accelerated.

Cavounidis (2013) indicates that even though the real size of return flows are difficult to be estimated, nevertheless there are some indications that can approximately guess this trend. Specifically, Lianos and Cavounidis (2012) suggest that there is an important decrease in the size of the legal migrant population during the years of the economic recession. Specifically, the migrants' population in Greece dropped from 603,000 at the end of 2009 to 448,000 at the end of 2011 and to 110,000 in 2012, General Secretariat of Population and Social Cohesion (2011). Consequently, we realize that most of the decrease is strongly correlated with return migration as the vast majority of immigrants decide to leave Greece due to the loss of their financial rights to welfare benefits.

Alongside, according to the Unit for Migration Studies(2011) there is another important evidence that supports the fact that return migration results from the financial crisis. Regarding the Albanians who constitute the largest migrant community in Greece, approximately 15% of 500,000 Albanians in Greece decided to depart from the country. Moreover, Cavounidis (2013) implies that the current financial downturn in Greece had significant implications on the migratory landscape of the country. During the current financial crisis the enormous increase in sovereign debt has no longer provoke incentives for immigrants to continue living in Greece and thus they decided to return to their country of origin.

The current financial downturn in Greece worsen labour market conditions, something that not only discouraged prospective migrants to seek for a better future in the country, but also provoked large emigration waves from the nationals to alternative foreign destinations. Bertoli et al., (2013). Greece accumulated high levels of debt during the decade before the recession, when capital markets were significantly liquid, Nelson et al, (2011). As the financial crisis has created even more illiquid environment, the country was not able to control its debt obligations. As a result, the Greek government had to introduce a series of austerity measures along with European assistance in order to obtain a recovery from the financial crisis.

However, the government's plans for fiscal consolidation were followed by tax increases and sharp spending cuts that led to higher rates of unemployment, Nelson et al.,

(2011). Specifically, according to Bank of Greece (2014) registered unemployment reached 10.6% in November 2009; while in October 2009 27.5% of young people (aged 15-24) were unemployed. In addition, between the second trimester of 2008 and the second one of 2011 the unemployment rates among men 15-29 increased from 12.6% to 29.3% while among women in the same age from 20.5% to 38%, Lolos and Papapetrou (2010). More recently, as the economic downturn became harsher, Greece's unemployment was at a stunning 26.7% in January of 2014, something that is up from 26.5% in 2013, Papapetrou and Bakas (2014).

The scholar also reports that in the age group 30-44 the unemployment rate had an increase from 3.7% to 11.6% for men and for women from 10.4% to 18.7%, something that reflects that unemployment affects all educational groups not only with basic degrees but also with postgraduate studies. These groups used to consider their studies a strong weapon in times of prosperity, but unfortunately during the economic crisis the effect of their degree to the future of their personal job situation is quite negative Bertoli et al, (2013).

Considering now the countries that currently attract the attention of the prospective Greek nationals, IOM Office in Athens in 2012 indicates that those have been the United Kingdom, the United States, Australia, specific countries in the Middle East and Germany. Specifically, the German Federal Statistical Office reported that the first six months of 2011 the Greek nationals that emigrated to Germany were increased by 84% comparing with the same period of 2010. Moreover, Bertoli et al, (2013) suggest that the large migration inflows to Germany from countries in appalling financial situation, such as Greece or Spain were attributed to the recent economic conditions that were characterized by high unemployment rates and to expectations about the future of the Greek economy as indicated by 10-year government bond yields Cavounidis (2013); Afonso et al, (2012).

Considering all the above, we can conclude that once more within the years of the Greek migration history, a series of financial indicators such as poor labour conditions, high unemployment rates, high tax levels are the main determining factors that transformed Greece again into an emigration country during the current financial crisis Lianos and Cavounidis (2012), something that definitely alters the economic and social landscape of Greece.

#### **4.5. Hypothesis Development**

A great number of researchers such as Christodoulakis (2010); Featherstone (2011); Labrianidis and Vogiatzis (2013a) offer significant studies on the Greek financial recession and contemplate their investigations on this aspect as Greek's finances seem to be significantly weak. Particularly, we focus on the financial and social variables that influence the phenomenon of emigration in Greece during the economic downturn and reveal the causes that continues to motivate Greek nationals to move abroad.

Central government debt has received a particular attention within the academic literature especially during the recent economic crisis Gomez – Puig and Sosvilla – Rivero (2013), as it influences the public finances of a country's economy. After a large period of economic stability, the financial recession that followed the US subprime crisis highlighted the imbalances within the European Monetary Union and especially in Greece, since 2010 that has been bailed out twice. Gomez-Puig (2008) consider this determinant as a significant constant of their analysis, as they indicate that in Greece and Italy in particular, the large fiscal deficit and the enormous central government debt resulted in the macroeconomic imbalances during the economic crisis.

Consequently Mody (2009) argues that countries that have been hit severely by the economic crisis and have high government debt rates are keener to face greater loss of growth potential and labour competitiveness, something that results in escalated unemployment. Besides, the scholar indicates that as there is a relationship between unemployment rate and an increase in the inflation rate, there is deterioration in a country's austerity; so it will augment the probability of occurrence of the phenomenon of migration. Moreover, Sakellaropoulos (2010); Horafas (2010) report that since the beginning of the economic crisis in Greece, the escalating rates of central government debt, especially in the years of 2009 and 2010 was 136.9% and 129.2% respectively had a great impact on several structural characteristics of the country.

In particular, the worsening of the government debt had an effect on the existing economic context; high inflation rates, an increase in GNP and unemployment, provoke a fall in consumption expenditure and led to competitiveness deficit and fall in production, something that affects Greek nationals' decision to migrate, in order to avoid the recent crisis situation. Frangakis (2011) reports that during economic crisis in Greece, central government

debt has escalated and led to raise of taxation, curtail of public expenditure, including pensions and increase in the unemployment rates.

Likewise, OECD (2013) in its report shows that the deep recession that stroke the EU member states and in particular Greece, provoked a significant increase in the central government debt, which respectively augmented economic and social inequalities in the country and an obvious uncertainty of social cohesion. Furthermore the report implies that the central government debt during the financial crisis and the collapse in public finances have significantly increased and brought Greece to the verge of default.

*H<sub>1</sub>: We hypothesize a positive regression coefficient for the central government debt showing that emigration flows from Greece increase when the central government debt of Greece is higher.*

Ever since the international financial crisis hit significantly the region of the Southern Europe and of the Western Balkans in the second half of 2007, the global trade had severely affected these specific countries, Bastian (2011). The author implies that the dramatic decline in imports of goods have refocused the countries' path from crisis to recovery. Nonetheless, the recovery according to Anastasakis et al (2011) is "fragile and uneven", something that resulted in a sharper fall of imports than exports especially in countries such as Serbia and Montenegro and PIGS, which had registered confounding levels of above 20%.

Regarding the economic recession and its impact on the international trade, Abiad et al., (2011) and Baldwin (2010) indicate that financial downturns are followed by large declines in output and employment, something that consequently affects the social cohesion of the country. Furthermore, Choudhry et al., (2014) support that periods of economic crises are characterized by high exchange rate volatility, which affects significantly the trade flows. In particular, Abiad et al (2011) report on their study which includes data from 153 economies during the period 1970 – 2009, that exchange rate volatility is one of the most important variables that affect imports of goods. Accordingly, Fratzscher (2009); imply that the recent economic downturn developed highly volatile movements internationally, something that affected imports and exports within foreign trade markets.

Hence, Ahn et al (2011) suggest that exchange rate volatility has a significant impact

on imports flows and provide evidence that financial factors affect the international trade. Additionally, Behrens et al (2010) argue that there is a strong linkage between imports of goods and GDP, while Eaton et al (2011) employed an 80% solution by using a more elaborate equilibrium model and show that finance based factors such as GDP affect the world trade. Nonetheless, Levchenko et al., (2010) indicate that automobile imports even during the crisis experienced a rise in import prices and is more consistent with Haddad et al (2010) who suggest that imports of goods in the USA and the EU during the crisis had an incline in these regions.

Behrens et al., (2010) on their analysis of the 2008 – 2009 trade collapse in which employed micro data from Belgium found that the most significant factor that can explain changes in imports and exports of goods is growth of GDP. Specifically, the recent economic recession that deteriorated significantly the GDP growth of especially Southern European countries provoked consequently a dramatic decrease of imports of goods and simultaneously a persistent decline in employment, which led to a severe and prolonged migration in searching of better employment circumstances. Consistently, Kovac and Kovac (2013) analyze the impact of global trade of goods in Croatia from 2001 to 2010 and show contribution of GDP growth on imports of goods. Moreover, the authors sustain that especially during the economic crisis a fall in foreign trade of goods resulted to lower development and competitiveness, something that consequently had a positive contribution to the phenomenon of migration to more prosperous countries with more competitive markets.

Considering Greece, the international economic crisis has affected dramatically the country. According to Lekakis and Kousis (2013) the high public debt of the country could not offer development and positive GDP growth; therefore it would be very difficult for Greece to succeed an augment to the trade of goods, which would help country exit the recession. In particular, between 2003 and 2008, Greece and Albania were the most important trading sources in the area. Concerning bilateral trade volumes, Anastasakis et al., (2011) indicate that merchandise trade with Greece reached 9% of exports and 15% of Albanian imports. Nevertheless, on the beginning of the financial crisis in Greece, GDP growth started to decline, something that consequently led to a fall of the trading shores between both countries and led to low wage growth and unemployment Carlin and Soskice (2010) while the combination of these two resulted in rise of Greek natives migration.

*H<sub>2</sub>: We hypothesize a negative regression coefficient for the level of import of goods which would indicate that emigration flows from Greece increase when the level of import of goods decreases.*

In the European Monetary Union area, the financial recession built up economic imbalances as a great number of capital flows moved from Northern to Southern regions of Europe Gros (2012). Particularly, in Greece, massive foreign capital was used in order to cover the finance consumption during the crisis. Alcidi and Gros (2011); Gros (2011); Holinski et al., (2012) support that as the expansion in domestic demand financed by the capital inflows the Southern European countries and especially Greece, lost gradually its competitiveness, which consequently resulted to a drop of the level of exports of goods, which inevitably led to financial imbalances in the country, lower domestic demand and lower GDP.

Furthermore, Bank of Greece (Bank of Greece. 2014) in its report indicates that competitiveness of the Greek service sector influence goods exports, during the economic recession. Particularly as Greece main competitiveness sector is tourism, especially from periphery countries such Spain and Italy, or emerging countries such as Turkey, which are regions that due to crisis suffer from wage inflation and high price, there is a loss in competitiveness with implication in exports of goods. It was also obtained from the study of Feldstein (2012) that the introduction of Euro in 1999, crated difficult economic consequences that resulted in the sovereign debt in Europe. Regarding the relationship of Greek competitiveness the author suggests that the financial downturn in Greece aggravate a rising account deficit that affect Greek productivity, causing the prices of goods to rise. Consequently, this causes Greek imports to rise and exports to decline, creating at the same time a large trade deficit. As a result, a decrease in Greek competitiveness makes Greek exports less attractive to the markets, something that decreases Greek GDP growth and employment. The higher rates of unemployment lead to larger migration levels from Greek nationals.

*H<sub>3</sub>: We hypothesize a negative regression coefficient for the level of export of goods and services showing that emigration flows from Greece increase when level of import of goods decreases.*

Cash surplus is one of the most important determinants in a country's economy, thus during recent years there has been a growing literature that explains its relationship with the public debt and the phenomenon of migration in Europe and especially in Greece. Sotomayor and Cadenillas (2011) used a dividend payment model with regime switching, as they imply that cash reservoir, that means cash surplus or deficit, depends on the regime of the economy. The scholars obtained the first analytical solutions for the optimal dividend policy and indicated that a country's cash reservoir is strongly correlated with long economic conditions. Particularly they suggest that country's cash flows during periods of uncertainty, such as Greece during the economic recession, vary according to public debt. Likewise Cadellinas et al (2007) examining a model by a standard Brownian motion, suggest that there is evidence that a country's surplus or deficit is strongly affected by overall financial movements, such as public debt rates. Furthermore, Driffill (2010) reports that country's cash surplus changes within an economic crisis, something that consequently influences tax rates, wage payments and motivate people's decision to migrate.

In addition, Brauninger and Majowski (2011) developed a report in PIIGS with meticulous emphasis in Greece, included an estimation model that shows the imbalances on the cash reservoirs, during the financial recession. Specifically, during the recent economic crisis the cash reservoir in Greece shows decline rates as overall income movements are influenced by financial conditions. As a result, tax rates and unemployment figures escalated at record heights and Greece became unable to satisfy its natives' labour needs. Indeed, current economic downturn has had a strong impact on country's reservoir; cash deficit showed the highest rates in 2009 and 2010, with 15.6% and 10.6% respectively Brauninger, and Majowski (2011).

Consequently, due to the economic recession, stabilization has not reached the country, thus, a great number of Greek citizens decided to emigrate in order to avoid high unemployment rates. As a result, the report shows a linear relationship among cash surplus, public debt and emigration.

*H<sub>4</sub>: We hypothesize a negative regression coefficient for the cash surplus which would mean that emigration flows from Greece increase when cash surplus decreases.*

According to Buchanan et al., (2012) foreign direct investment is a worldwide



phenomenon and is implicit to be a very important antecedent to financial development. During the main years of the financial crisis (2009 – now) there has been a sharp reduction in inflows of foreign direct investment, which has hit harder especially the countries of Southern Europe and Western Balkans. In particular, in Bulgaria, Croatia and PIIGS, the inflows of FDI fell sharply as a consequence of the financial downturn, as were the countries with the highest pre – crisis per capita inflows. This occurs as there are countries that do not have adequate national savings, in order to support financial development and thus make efforts to meet the deficit by foreign resources, Mucuk and Demirsei (2013).

On Greek case Dritsaki et al., (2004) suggest that the effect of foreign direct investments in the economic growth of the country has an unidirectional causal relationship with GDP and employment. Thus, even though the FDI had in Greece a significant attraction during the financial recession, nonetheless unemployment has sustained in high levels especially among young native workers Featherstone (2011) who started searching for an employment abroad. Even though Greece has been severely affected by the recent economic recession, Prica and Barlett (2012), the country's performance in attracting foreign investments was very satisfactory in 2013 compared with the previous year. Specifically, according to Bank of Greece (2014) total gross inflows in Greece for 2013 amounted to 3.3 billion Euros, which is an increase of 63.6% compared to 2012, while net inflows amounted 1.9 billion Euros and recorded also significant increase of 43% compared to 2012, demonstrating stabilizing trends despite the harsh economic crisis. Consequently, it would be of great interest to study this parameter in our case and compare it with the conclusions of Bank of Greece study.

*H<sub>5</sub>: We hypothesize a negative regression coefficient for the cash surplus which would express the fact that emigration flows from Greece increase when cash surplus decreases.*

According to European Commission (European Commission. 2009) the most significant index of the financial activity is GDP per capita, which when fluctuates, entrains the rest of the figures. Matsaganis and Leventi (2013) on their study on the distributional impact of the financial crisis in Greece, suggest that the recent downturn had severe financial and social impacts on Greek population. Specifically, the weakness of the Greek economy became profound with the decrease of GDP (-3.2%) in 2009, while employment earnings declined and unemployment rose. Thus, Lee and Hsieh, (2013) indicates that lower GDP per

capita provokes serious social consequences for economy. In the case of Greece, the recent financial downturn led to dramatic decrease of important economic factors of the country, such as GDP per capita and aggravated declines in welfare, while shove large parts of the Greek population to live under poverty line and thus they decided to consider emigration as the only solution to escape from the adverse effects of the crisis.

*H<sub>6</sub>: We hypothesize a negative regression coefficient for the percentage of GDP per capita in Greece meaning that emigration flows from Greece increase when the percentage of GDP per capita decreases.*

A bank's capital can be considered as the margin to which creditors are covered if a bank liquidates its assets. Regarding Greece which experienced dramatic financial problems during the recent economic recession, Mink and De Haan (2013) support that as a failure of the banking system occurred, the country was obliged to accept bilateral loans in order to avoid a further economic disaster and a possibility to spread out a new banking crisis in the EU. Moreover, the impact of the financial downturn in Greek society and economy was high. According to Davies and Ng (2011) banking crisis in Greece deteriorated its sovereign creditworthiness, increased in its sovereign risk and weakened its balance sheets. As a result, Greek banks that have a significant exposure to the Greek government and consequently provoke a severe effect on the cohesion of the country, as the economic growth started to decrease significantly, affecting simultaneously the employment rates of the country. Consequently, in view of a larger exposure to the banking crisis, a great number of Greek natives decided to emigrate and seek for a better future abroad.

*H<sub>7</sub>: We hypothesize a negative regression coefficient for the percentage of Greece's bank capital which would express the fact that emigration flows from Greece increase when the percentage of GDP per capita decreases.*

The recent economic recession has a significant effect on the banking sector of the vast majority of the developed countries and has dramatically weakened the functioning of interbank markets Maddaloni and Peydro (2009). In Greece, due to the deep recession, firms were not able to occur, they stopped paying and started making redundancies Spyrou and Kassimatis (2009). As a result, individuals remained without an income and consequently without an ability to repay their loans. These loans called "subprime" and were the first that

collapsed, provoking a dramatic domino effects in financial market. Furthermore, Papatheodorou and Dafermos (2013) indicate that during the economic recession, people experienced inability to payout their loans due to their financial insufficiency, as the lending interest had a dramatic rise. Consequently, the financial situation in Southern Europe and especially in Greece appeared vulnerable with increasingly high unemployment rate, lower wages and pensions, inability from banks to fund individuals and small/medium firms, as they experienced decrease on their deposit, something that led to higher lending interests. Hence, Greek natives decided to leave their country in order to escape from uncertainty and risk.

*H<sub>8</sub>: We hypothesize a positive regression coefficient for the lending interest in Greece thus emigration flows from Greece would increase when the lending interest increases.*

OECD (2013) suggests that the economic crisis that hit significantly the OECD countries raise highly the long term unemployment and shows no tendency to return to its natural level. Consequently, as the long-term unemployment is one of the pressing problems and the situation during the recession remained feeble, many natives decided to leave their country and emigrate abroad in order to seek for better conditions. Concerning Greece, the economy of the country was in the middle of the crisis years before the recent economic crisis, characterized by high debt, large fiscal deficits and a continuous decline of competitiveness and employment rate. Therefore, the crisis of 2007 enlarged these negative impacts and accelerated the decline of the Greek economy Bank of Greece (Bank of Greece. 2014). As a consequence, the rate of long term unemployment which was already relatively high, rose to 38% in 2011, IMF (International Monetary Fund. 2011), while World Bank (World Bank. 2013) indicate that in 2013 the long term unemployment rate increased to 45%. Furthermore, Featherstone (2011) supports that the recent Greek sovereign debt crisis exposed the country to a vulnerable financial position. Thus, the country had failed to conquer the severe consequences of low competitiveness, investment imbalances and high unemployment rates. Featherstone (2011) indicates that due to the financial downturn, Greek government decided to decrease or cut wages and pensions, while long term unemployment was projected to be 45% in 2013. Consequently, and not surprisingly, as Greece has maintained a high level of long-term unemployment, the vast majority of the Greek natives made an attempt to emigrate abroad in order to shift themselves towards more prosperous economies.

*H<sub>9</sub>: We hypothesize a positive regression coefficient for the long-term unemployment rate in Greece. Emigration flows from Greece would increase when the long-term unemployment rate increases.*

In Greece, the global financial recession has severely affected the local economy with dramatic implications in several socioeconomic determinants Kondilis et al., (2013). After 14 years of economic austerity since 1994, Greece's GDP started showing zero growth rates since the mid-2007, and negative growth rates since the mid-2008. According to Giannetou (2012) in this tough economic situation, the vast majority of the Greek population started living under a risk of uncertainty, poverty and social exclusion that led to deterioration of population growth. In addition Kondilis et al., (2013) indicate that financial crisis increased significantly unemployment rate, poverty and insecurity, something that consequently affected negatively the population growth, while Mavroudeas (2010) additionally shows that there is a strong link with emigration as the vast majority of Greek natives experienced these dangerous conditions and not being able to afford this situation longer, thus the vast majority decided to emigrate and improve their economic and social indicators abroad.

*H<sub>10</sub>: We hypothesize a negative regression coefficient for the population growth in Greece which would mean that emigration flows from Greece would increase when the population growth decreases.*

Economic theories on migration explain that the vast majority of migration decisions are mainly influenced by the percentage of poverty in European countries and especially Greece, Kennan and Walker (2011). Cavounidis (2012) conducted a research in Greece including a great number of macroeconomic parameters and showed that as the recent economic crisis has hit the labour market, there were lower employment levels. As a consequence, as unemployment and poverty rates rose at record heights, Greek natives could not afford their country's financial inequalities, with 20% of the total population in 2012 living below the poverty line El.Stat (2013).

Consequently, due to the effects of the economic recession, unemployment and poverty increasing severely, a great number of Greek nationals decided to search for improved living standards abroad.

*H<sub>11</sub>: We hypothesize a positive regression coefficient for the poverty index in Greece. Emigration flows from Greece would increase when poverty increases.*

The recent financial recession has incorporated determinants that are strongly related not only with fiscal issues, such as GDP ratio or other economic factors, but also with institutional ones such as the level of Democracy. Eichengreen and Leblang (2008) support that there is a positive relationship among democracy, globalization and human mobility. Additionally, European Commission (European Commission. 2009) imply that the recent financial crisis in Europe and particularly in Greece has caused severe institutional imbalances, while the member states found it difficult to counteract with existing policy instruments something that consequently transformed the financial crisis into a crisis of democratic authority. As a consequence, not only the economic but also the institutional imbalances and vulnerabilities led to significant departures of natives to more prosperous areas Scharpf (2011).

*H<sub>12</sub>: We hypothesize a negative regression coefficient for the democracy index in Greece. Emigration flows from Greece would increase when democracy index decreases.*

Corruption has also been studied as an institutional determinant, Aisen and Veiga (2011). Dimant et al., (2013) show in their study that despite socioeconomic and demographic factors, politico – institutional ones such as political instability or high corruption rates are major push factors which contribute to individuals ‘decision to emigrate. Especially in periods such as financial crisis in which individual and living conditions are bad for the vast majority of the citizens, high levels of corruption are strongly associated with low levels of economic activity Campos et al., (2010). Thus based on these lines of reasoning, high corruption is among the factors that contribute to low financial rates and consequently to insecurity and ambiguity, something that consequently leads to emigration, in order individuals seek for a more prosperous future abroad.

*H<sub>13</sub>: We hypothesize a positive regression coefficient for the corruption index in Greece which would indicate that emigration flows from Greece would increase when corruption index increases.*

The recent few years there have been signs of significant interest in bureaucracy Olsen (2008) as there is a escalating concern that the financial downturn affects bureaucracy on markets and social networks. Accordingly, Ladi (2014) indicates that the economic crisis that hit Europe a few years ago has provoked a wave of public administration reform in the vast majority of European countries. The imbalance and insecurity made Ireland, Southern Europe and particularly Greece more vulnerable to bureaucratic attacks. In particular, in the peak of the financial crisis in Greece, the level of bureaucracy in 2011 and 2012 was 0.38 and 0.36 accordingly when score 1 means the best performance in autonomy and bureaucratic expertise. In Greece, due to the severe sovereign debt crisis, the country has been exposed to the governance weakness and failed to defeat major problems of low competitiveness and high bureaucracy levels in the public administration placing itself in a vulnerable position, Featherstone (2011). As a result, individuals remained suffering the nightmare of uncontrolled deficits and unstable society, hence Greek natives decided to leave their country in order to escape from weakness of governance and financial uncertainty.

*H<sub>14</sub>: We hypothesize a positive regression coefficient for the level of democracy index in Greece explaining that emigration flows from Greece would increase when level of democracy increases.*

During the last years, Greece experienced an increase in national emigration due to the recent financial recession. The number of emigrants who abandoned Greece increased from 46,300 in 2002 to 236,000 in 2011, ELSTAT (ELSTAT. 2013). Consequently Greek natives that left their home region have been the main source of population growth in the destination countries and contributed significantly to population growth, Boubtane et al., (2013).

Nonetheless, there is an academic concern about the impact of economic, social and instrumental conditions on the phenomenon of migration in general and specifically on Greek emigration. Economists have indicated both theoretically and empirically the impact of economic factors on migration especially in recent years because of the economic crisis, Okkerse (2008). A well establish branch of literature has identified the significant role of economic and social factors in shaping migration behaviours, Ortega and Peri (2009) and corporate economic attitudes Afifi (2011). The theoretical studies of migration, even though are divided between academic disciplines, such as anthropology, sociology, geography, and

law have typically derived from a base in economic theory. They are concerned with three questions – why migrate, who migrates and what are the consequences for source and destination countries, Bodvarsson and Van den Berg (2013).

Specifically, in mainstream economics the neoclassical economic theory explains that migrants decide to move on the basis of a cost – benefit calculation De Haas (2010) and is an application of the human capital model in which the phenomenon of migration is an investment in one's life prosperity. Indeed, in Greece due to the recent financial crisis, high-income inequality and high costs of living forced Greek nationals to emigrate to more prosperous countries. Taking into account the push and pull factor theory, which is based on Ravenstein's laws of migration, we detect a correlation of a great number of determinants that affect the phenomenon. This result is relates with findings by Islam (2007) who examined the causality between migration and unemployment. They indicate that people take into account job opportunities in their decision to migrate, as well as other economic, social and instrumental factors.

Further, Jean and Jimenez (2007) evaluate the economic impact of unemployment on migration, and suggest that a wide range of economic, social and instrumental factors enter into the migration decision and produce a correlation relationship.

#### **4.6. Analysis Plan**

In this section we outline an analysis of the data employed in order to offer an extensive evidence of how and where the data were obtained and what is their association with the outcomes. In addition, an interpretation of the methodology used will be resolved accordingly with various types of models and tests that they have been employed for a reliable performance of the results.

For the Greek situation a 1990 - 2012 dataset has been extracted from the Greek Statistical Authority, the World Economic Output Database and the World Bank Database. In particular, as we focus in data that offer accuracy and precision, we choose to undertake our observations from the International Migration Database of the Organization and Economic Co – Operation and Development, in order to obtain recent hand – collected data regarding Greece. Additionally, the current study includes macroeconomic data concerning the 14 determinants employed. Our data draws on repeated investigation of the various financial and

social coefficients from 1990 - 2012 in order to shed light on their influence on the phenomenon of migration.

We use a number of important financial and social indicators that have particular implication on the economic and social cohesion of Greece. In order to approach the annual differences and the impacts that have been created from the recent financial recession in Greece, our coefficients were obtained on yearly basis. The variables employed include cash surplus, central government debt, exports of goods and services, foreign direct investment, GDP per capita, imports of goods, bank capital, lending interest, long term unemployment, population growth, poverty, level of democracy, corruption and bureaucracy. The major objective of our analysis is to allow us to detect the effect of the abovementioned variables in the Greek economy, which influence the emigration flows of the country.

In order to evaluate the significance of the aforementioned variables regarding the nationals' emigration flows from Greece we selected a variety of cross - sectional data. In our case the coefficients employed concerning Greece will be tested throughout a preset period. Pooled Ordinary Least Square (OLS) model will be used in order to provide coverage for the behaviour of the selected determinants and therefore complete our empirical analysis. Thus, the adoption of the statistical software package Stata 13 will implement our method easily, so as to obtain a constant econometric analysis of our data. The equation below provides the interpretation of this model with the enclosure of the determinants that have been used into the analysis.

$$\text{Mig}_t = \alpha + \beta_1 \text{CentGovDebt}_t + \beta_2 \text{ImportsofGoods}_t + \beta_3 \text{ExportsofGoods}_t + \beta_4 \text{CashSur}_t + \beta_5 \text{ForeighDirInvestment}_t + \beta_6 \text{GDPpercapita}_t + \beta_7 \text{BankCapital}_t + \beta_8 \text{LendingInterest}_t + \beta_9 \text{LongTermUnemployment}_t + \beta_{10} \text{PopularionGrowth}_t + \beta_{11} \text{Poverty}_t + \beta_{12} \text{LevelDemo}_t + \beta_{13} \text{Corruption}_t + \beta_{14} \text{Bureaucracy}_t \quad (3)$$

Where t indicates the year under consideration and takes values from 1990 up to 2012

#### **4.7. Empirical analysis of results**

In this part of our thesis, we will make an attempt to comprehend the outcomes we will extract during the empirical analysis. Furthermore, our analysis takes under consideration the period of the recent financial recession in Greece and it is more than necessary to obtain a consistent empirical analysis and detect the reliability of the employed



variables, thus a cross – sectional analysis has been used by using OLS model.

In order to infer the analysis, the period between 1990 - 2012 will be observed, as it is very fruitful to investigate the behaviour of each used financial and social determinant. Table 4.3 shows some descriptive statistics, as for instance the mean and the standard deviation, that are important to obtain a general idea for the behaviour and the differences among each variable during the economic crisis in Greece. In addition, Table 4.3 contains the mean, the standard deviation and the maximum – minimum number of observations for each variable.

Our data draws on repeated investigation of the various financial and social coefficients from 1990 – 2012 in order to receive more information regarding the phenomenon of migration in Greece not only in view of the late 2000s crisis but from a wider period of time. It would be significantly fruitful for our study to investigate the factors that affect migration in Greece before and during the financial recession of 2009. In the first phase of migration in Greece, we can observe that after the collapse of the Central Eastern European communist regimes in 1989 a massive number of immigrants especially from neighboring countries, such as Albania and Bulgaria, ended up in the country. The geographic position of Greece, its economic growth, including a rise of living and educational standards with higher payments and status treated as an important motivation for migrants who benefited from the current financial situation during the years between 1990-2008.

Nonetheless, according to Cavounidis, (2013) the recent financial recession that hit Greece since 2009 has resulted in new twists and new circumstances in the Greek migration experience that have further altered the social and financial landscape of the country. As a result, we reckon that it is more than necessary to prolong our data in order to show more clearly the transition of Greece from an immigration country to a region of emigration due to the present economic downturn OECD(2013); Papademetriou and Terrazas (2009).

The first variable shows the cash surplus for Greece. It is more than obvious that during the selected period of economic crisis, Greece has negative levels of cash surplus at 7%. This outcome reveals that the country is significantly affected by the financial recession as the amount of the assets and goods do not exceed the portion that is utilized. Additionally, the second variable reveals how the central government debt influenced the situation in

Greece the years of economic downturn and shows that the government liabilities including loans have been considerably increased and affected the future financial position and development of the country. Furthermore, variable 3 shows the rates of exports of goods and services in Greece for the determined period of time. In particular, this outcome indicates that Greece has unsatisfactory transactions within the circulation area of goods. Foreign direct investment, the fourth variable, has a mean value of 1,562 million US\$. In addition, variable 5 implies that despite the financial recession, Greece's net inflows performance show a stabilizing trend. Moreover, low GDP per capita levels in Greece, imply worse growth in the economy during the crisis and tends to translate as a decrease in production and effectiveness. Variable 6 presents the natural logarithm of imports of goods for Greece. It can be entailed that Greece experiences low levels of imports of goods at 25%, due to the sovereign debt crisis that affected negatively the trade. As well variable 7 shows the mean of the bank capital ratio. It is clearly shown that the variable's level for Greece is very low only at 8%. Therefore, this descent of the Greek banks provoked a significant impact on the cohesion of the country, as the economic prosperity started to decline. Moreover, Greek lending interest rate, which is variable 8 indicates the rate of interest at which banks lent to customers. As the mean of the determinant is relatively high, is in accordance with the recent situation in Greece, where the lending rates appeared to have a significant rise. Additionally, variable 9 shows the long-term unemployment rate in Greece. This recommends that the high unemployment rate in Greece affects a wide range of financial and social phenomena such as migration flows. Variable 10 presents the mean of the population growth rate. The significantly low mean of the determinant at 1% implies that the economic downturn increased the impact of uncertainty in the country and affected negatively the population growth rates. The four last variables, poverty, level of democracy, corruption and bureaucracy are the four institutional factors that have been taken into account in our theoretical concept. Their mean values are respectively 20%, 67%, 4.4 and 0.59.

Accordingly, from all the above, we imply that Greece has low rates within its variables for the predetermined period something that is due to the fact that Greece experienced high revelation in economic recession.

As for the empirical analysis, first we compute the Pearson correlation matrix of our 14 variables which is shown in Table 4.4. We notice that we do not have correlation factor above 0.7 in which circumstance we should have investigated the case without the correlated

variable. However, we have some correlation factors that are very close to the tolerance value of 0.7.

After the descriptive analysis of the employed determinants we will proceed to the regression analyses, in which the significance of each coefficient will demonstrate how it influences the phenomenon of migration in Greece. Table 4.5 shows the results of the OLS regression model and includes as well the p values that indicate the significance of each determinant of the model. Considering our model we use the employed coefficients and comprehending them with OLS regression analysis with statistical package Stata 13.

As it appears from the OLS model regarding Greece, the most significant variables that influence the phenomenon of emigration and are positively related are exports of goods, imports of goods, long term unemployment and population growth since they have a lower p value than the 5% significance level.

This means that if one unit of the abovementioned variables increases, then the outflow of emigration number from Greece will increase as well by the specific determinant. Argyrou and Tsoukalas (2011) indicate that during the financial downturn there has been an increase in the rates of unemployment, something that provoked an augment of Greek natives outflow. Similarly, Featherstone (2011) illustrates that high long-term unemployment rates in Greece influenced in a great extent the natives' flows from the country.

We can see from Table 4.4 that conversely, cash surplus, foreign direct investments, bank capital and corruption are negatively related to migration at 10% level. These results indicate that if one unit of these variables decreases then Greek emigration outflow increases. In particular, Sotomayor and Cadenillas (2011) support that low levels of cash surplus provoke high economic instability, which simultaneously affects the social cohesion of a country. In this spirit, Alfaro and Charlton (2010) imply that there are low levels of foreign direct investment irritate a further weakness in social infrastructure, inciting thus decrease in competitiveness and ascend in unemployment rates which unavoidably influence the migration outflows. Accordingly, Diamand and Rajan (2009) sustain that low rates of bank capital have significant influence on the social consistency of a country, provoking therefore high levels emigration outflows.

Further, as stated in our methodological description in chapter 2, we inspect normality

and collinearity.

We generated residuals with STATA and used the Shapiro-Wilk W test for normality as shown in Table 4.6. We obtained large p-value indicating that we cannot reject that residuals are normally distributed.

Moreover, we also checked multicollinearity by using the package COLLIN to compute variance inflation factors (VIF) for the variables. Table 4.7 shows that all VIF factors are under the tolerance level of 10, thus there is no need of further investigation about collinearity problems.

#### **4.8. Discussion - Conclusions**

A standard issue that occurs from our set of analysis is the finding of the factors that made Greece more exposed to the recent financial downturn and as a consequence to the phenomenon of emigration. First the Greek fiscal recession that erupted significantly in the autumn of 2009 provoked high financial dependence of the country and thus high economic and social insecurity for native individuals who decided to emigrate in order to seek for better conditions abroad, Featherstone (2011). In addition, Cochrane (2010) implies that the severe financial problems of Greece were an important motivation for Greek natives to emigrate so as to recover from the economic crisis. Accordingly, Zografakis et al., (2009) suggest that owing to the economic uncertainty following the recent financial crisis, emigration flows from Greece increased, drawing attention to the phenomenon as growing threat to the cohesion of the Greek society.

Furthermore, an important number of our examined determinants, such as cash surplus, imports of goods and long term unemployment are significantly related to the phenomenon of emigration in Greece. In particular, Bertoli et al., (2013) designate that the crisis that caused dramatic economic and social problems, such as high rates of unemployment and decreased rates in trade determinants, made Greek natives to decide to emigrate in order to obtain increased possibilities for prosperity. Additionally OECD, (OECD. 2012) indicates that in Greece the situation of a prolonged period of high unemployment and low competitiveness contributed significantly to explain the recent increase in migration outflows from the country.

Our findings are new to the existing literature. Although they do exist some suggestions in previous studies on the subject, nonetheless it is not possible to compare the

current outcomes to prior literature, as previous academic researchers do not precisely consider the impact of each determinant to the emigration outflows. Consequently, as the preceding findings are quite limited, our results are able to complement the existing evidence by providing new findings on the financial and social determinants that influence the phenomenon of emigration from Greece.

**C1** The coefficient for central government debt is consistent with our expectations for negative relationship with the phenomenon of emigration from Greece. It is significant at the ten per cent level. Frangakis (2011) reports that during economic crisis in Greece, central government debt has escalated and led to raise of taxation, curtail of public expenditure, including pensions and increase in GNP and unemployment rates, high inflation rates, a fall in consumption expenditure and led to competitiveness deficit and fall in production, something that affects Greek nationals' decision to migrate, in order to avoid the recent crisis situation. The result confirms the first hypothesis.

**C2** The imports of goods variable has not the expected negative sign but the coefficient is highly significant. Therefore, our finding is consistent with Behrens et al (2010) who found that the changes of imports of goods in small economies such as Greece and Belgium during the economic crisis are very little to affect domestic operations and the social consistency of the country. The result rejects conjecture two.

**C3** The exports of goods coefficient is not consistent with expectations for negative relationship with emigration, though highly significant at 1 percent level. This finding proves fruitless in explaining the evidence that indicates that lower levels of exports of goods would augment Greek emigration outflows. Our evidence rejects conjecture three.

**C4** The cash surplus variable is significantly statistically related to the level of migration outflows accuracy at 0.1 significance level, suggesting that lower cash surplus rates tend to increase migration outflows from Greece. The coefficient for cash surplus variable has the same sign with our prediction. Thus, our finding is consistent with the results repeated by Decamps and Vileneuve (2009) who report that lower cash reservoir provoke lower levels of economic growth and severe consequences to social cohesion of a country. The result confirms hypothesis four.

**C5** The coefficient for foreign direct investment is negative consistent with the hypothesized negative sign and statistically significant. This result is in line with our evidence demonstrating that lower rates of direct investment provoke higher rates of migration outflows in Greece. Our result is consistent with the results reported by Featherstone (2011) and Dritsaki et al (2004) signifying that lower rates of foreign direct investment cannot overcome severe problems of low competitiveness and unemployment which provoke higher rates of Greek natives' emigration.

**C6** The coefficient for GDP per capita is inconsistent with the hypothesized negative sign and statistically insignificant. This outcome shows that the GDP per capita factor proves futile in explaining the migration accuracy. The result contradicts Argyrou and Tsoukalas (2011) that the lower GDP rates in Greece, especially during the severe economic recession, have strong implications in large sectors of the Greek population.

**C7** The bank capital variable is statistically related to the level of migration accuracy at 1 percent level, suggesting that higher rates of bank capital tend to decrease migration outflows from Greece. Our argument confirms evidence by John et al., (2008) and Berger and Bouwman (2013) that the lower bank capital rates, the higher the emigration outflows. There is support for conjecture seven.

**C8** The lending interest is consistent with the hypothesized positive sign but is not significant. This outcome suggests that the indicator does not affect the motivation of Greek natives to emigrate towards more prosperous countries.

**C9** The long term unemployment variable is positive and statistically related to the level of emigration accuracy at 0,1% level. Thus, this suggests that higher long-term unemployment rates have a propensity to increase migration outflows from Greece. The results align with the finding by Lolos and Papapetrou (2010), who support that economic recession provoked large fiscal deficits, huge debt and high long-term unemployment rates. Our results confirm conjecture eight.

**C10** The coefficient for population growth is high statistically significant but does not have the expected negative sign. Consequently, this notion is well described by Prochniak (2011) that the rates of emigration outflows increase as the population growth levels incline.

Our evidence rejects conjecture nine.

**C11** The level of poverty variable has not the expected positive sign and it is not statistically significant to the emigration accuracy. Hence, this consequently indicates that poverty does not have a tendency to increase migration outflows from Greece. The outcome accordingly does not affiliate with Write and Black (2011) who sustain that high levels of poverty aggravated higher migration waves.

**C12** The constant of democracy is inconsistent with the hypothesized negative sign and statistically insignificant. This outcome shows that the level of democracy factor proves ineffectual in explaining the migration precision. The result contradicts Suarez – Krabbe (2013) who suggest that elevated rate of democracy is an obstacle for emigration outflows.

**C13** Although the corruption variable is highly statistically significant at 5% level, nonetheless does not have the predicted positive sign. The result denotes consequently that this concept is well described by Cooray and Schneider (2014) that the rates of emigration outflows increase as the corruption levels decline. Our evidence rejects the conjecture.

**C14** Bureaucracy is consistent with the hypothesized negative sign however it is statistically insignificant. This outcome indicates that the quality of bureaucracy does not influence the phenomenon of migration.

The results reveal that potential Greek natives migrants have to shape expectations on the evaluation of the financial, social and institutional factors relevant with migration process both at origin and destination areas. The economic and social instability of Greece increased the motives to move and it definitely added to the usual complexity of migration decisions.

Even though Greece experienced a long period of advanced economic growth with low unemployment rates in the 1990s, has not yet recovered from the 2008 – 2009 financial recession something that resulted in related increases in the outflows of nationals. The sheer increase in long – term unemployment rate in Greece could not influence only the location decision choices of migrants coming from other countries, but also encouraged a large number of Greek natives to migrate, Bertoli et al., (2013).

In our fourth chapter we attained an important number of significant results regarding the behaviour of determined variables that influence the phenomenon of Greek emigration over the last twenty years including the period of the recent economic recession. There is indication from the current analysis that Greece was very exposed to the financial crisis, something that affected in a negative manner the behaviour of each coefficient and thus had a strong impact on the decision of Greek natives to emigrate. The results suggest that as Greece was in a severe financial situation due to the economic crisis and was dependent on the monetary policy support, the country experienced consequently major and drastic changes on its social cohesion.

Taking into consideration the cross - sectional analysis, we can identify one important outcome, that exports of goods, imports of goods, long term unemployment and population growth are positively related to migration in Greece, while on the other hand cash surplus, foreign direct investment, bank capital and corruption are negatively associated to the phenomenon. This is due to the fact that as the period of euphoria has been dramatically altered in Greece, with periods of depression and uncertainty to follow De Grauwe and Moesen (2009) natives migration could be an effective solution to respond to economic and social imbalances, Brauninger and Majowski (2011).

In response to the questions raised in the introduction of the current chapter, our outcomes indicate that some of the predetermined coefficients do have a significant impact on the phenomenon of migration outflows in Greece, while the recent economic crisis brought harsh financial and social changes that had a huge influence on migrants' moves. The financial and social factors employed are not all significant with the migration outflows in Greece, but the significant ones such as long term unemployment, cash surplus, exports of goods, foreign direct investment, imports of goods, population growth and corruption affected in a great extent Greek natives decision to emigrate to more prosperous areas where the current conditions would bring relief to them.

Finally, we recognize that the recent financial crisis has posed vital changes in the financial and social background of Greece. In particular, the recession interacted to the fiscal authority of the country with economic shocks and weak social protection, something that ultimately seemed to pose risks to social consistence of the country. Therefore, Greek natives' decision to migrate to wealthier areas was a response to the unintended effects of the economic recession. Overall this chapter shed light on an underlying relationship between



socioeconomic determinants and emigration, something that is a significant topic for research.

**Table 4.1: Average Annual Wages, GDP Growth Rate and Central government debt total for Greece**

The table presents results of the economic variables for Greece from 1995 until 2013. The table sets forth the average annual wage, the augmentation of average annual wage, GDP growth rate and central government debt total.

Year	Population of Greece x10 <sup>3</sup>	Greeks' Outflows	Average Annual Wages (Current Prices in NCU)	% Augmentation Average Annual Wages	GDP Growth Rate	Central government debt total (% of GDP)
1995	10634	6,697	9,994		2.1	110.3
1996	10709	7,011	10,744	7.50%	2.4	113.1
1997	10777	7,114	12,192	13.48%	3.6	109.7
1998	10835	6,988	12,956	6.27%	3.4	107.9
1999	10883	7,094	13,597	4.95%	3.4	109.9
2000	10917	7,425	13,800	1.49%	4.5	125
2001	10950	7,543	14,194	2.86%	4.2	127.9
2002	10983	46,333	15,804	11.34%	3.44	128.9
2003	11016	42,901	16,836	6.53%	5.94	124.3
2004	11057	46,534	17,686	5.05%	4.37	128.1
2005	11093	33,368	18,582	5.07%	2.28	125.4
2006	11131	23,202	19,555	5.24%	5.51	128.5
2007	11163	100,000	20,294	3.78%	3.54	125.6
2008	11186	106,000	20,850	2.74%	-0.21	121.3
2009	11185	102,000	22,056	5.78%	-3.14	136.9
2010	11153	143,000	21,199	-3.89%	-4.94	129.2
2011	11124	236,000	20,397	-3.78%	-7.1	106.5
2012	11090	262,000	19,766	-3.09%	-6.4	164.3
2013	11063	-	18,495	-6.43%	-	-

**Table 4.2: Descriptive of Greeks' outflows**

The table presents results of the descriptive statistics of the Greek migration outflows from 2002 until 2008. The table sets forth the population of Greece, the Greek outflows percentage and the augmentation of the Greek outflows. Data found from ELSTAT.

<b>Year</b>	<b>Population of Greece x10<sup>3</sup></b>	<b>Greeks' Outflows</b>	<b>% Greeks' Outflows</b>	<b>% Augmentation Greeks' Outflows</b>
2002	10,983	46,333	0,42%	
2003	11,016	42,901	0,39%	-7,68%
2004	11,057	46,534	0,42%	8,07%
2005	11,093	33,368	0,30%	-28,53%
2006	11,131	23,202	0,21%	-30,70%
2007	11,163	100,000	0,90%	329,76%
2008	11,186	106,000	0,95%	5,78%
2009	11,185	102,000	0,91%	-3,76%
2010	11,153	143,000	1,28%	40,60%
2011	11,124	236,000	2,12%	65,47%
2012	11,090	262,000	2,36%	11,36%

**Table 4.3: Descriptive statistics of variables**

The table presents results of the descriptive statistics of the variables employed regarding Greece over the period 1995 – 2012. The table contains the mean, the standard deviation and the maximum – minimum number of observations for each variable.

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Median</b>
Greeks' Outflows	90127	81186	15070	262000	46534
Cash surplus/deficit (% of GDP)	-7	3	-16	-3	-7
Central government debt total (% of GDP)	117	17	89	164	121
Exports of goods and services (% of GDP)	21	3	17	27	22
Foreign direct investment net inflows (BoP current Million US\$)	1562	1385	53	5733	1083
GDP per capita	17074	7077	9190	30399	12889
Ln Imports of Goods	25	1	24	26	24
Bank capital to assets ratio (%)	8	1	6	10	8
Lending interest rate (%)	15	9	6	30	9
Long-term unemployment rate (%)	44	5	34	57	44
Population growth (annual %)	1	0	0	2	0
Poverty (%)	20	2	14	23	20
Level of democracy (%)	67	5	60	75	69
Corruption (0-10)	4.4	0.5	3.4	5.4	4.3
Bureaucracy (0-1)	0.59	0.13	0.38	0.75	0.63

**Table 4.4: Pearson Correlation Matrix**

This table lists the correlation coefficients among the 14 variables we have defined in this chapter.

	Central Government Debt Total (% of GDP)	Ln Imports of Goods	Exports of Goods and Services (% of GDP)	Cash Surplus / Deficit (% of GDP)	Foreign Direct Invest Net Inflows (M\$)	GDP per Capita (\$)	Bank Capital to Assets Ratio (%)	Lending Interest Rate (%)	Long-Term Unemployment Rate (%)	Population Growth (%)	Poverty Index (%)	Level of Democracy (1-100)	Corruption Index (0-10)	Bureaucracy Level (0-1)
Central Government Debt Total (% of GDP)	1.0000													
Ln Imports of Goods	0.6932	1.0000												
Exports of Goods and Services (% of GDP)	0.3209	0.1658	1.0000											
Cash Surplus / Deficit (% of GDP)	-0.6579	-0.2506	0.6131	1.0000										
Foreign Direct Invest Net Inflows (M\$)	0.3196	0.2453	0.2136	-0.4829	1.0000									
GDP per Capita (\$)	0.3783	0.1298	0.6153	-0.6248	0.2976	1.0000								
Bank Capital to Assets Ratio (%)	-0.2153	-0.1463	-0.2795	0.3680	-0.4603	-0.3916	1.0000							
Lending Interest Rate (%)	-0.67211	-0.3308	-0.3192	0.6478	-0.3222	-0.3587	0.1851	1.0000						
Long-Term Unemployment Rate (%)	0.0379	0.2207	0.3227	0.3654	-0.1873	-0.5038	0.1567	-0.2984	1.0000					
Population Growth (%)	-0.5559	-0.0210	-0.6160	-0.6038	-0.3646	-0.6777	0.2569	0.6927	-0.5668	1.0000				
Poverty Index (%)	0.0892	0.3078	0.6029	0.5786	0.3460	0.5364	-0.3014	-0.2183	0.4642	-0.6802	1.0000			
Level of Democracy (1-100)	0.2824	0.1725	0.6571	-0.6409	0.6087	0.6678	-0.6297	-0.2611	-0.3111	-0.6866	-0.6712	1.0000		
Corruption Index (0-10)	-0.1750	-0.2175	-0.6932	0.6461	0.5111	-0.6178	0.4219	0.3753	0.4816	-0.6530	-0.0537	-0.1567	1.0000	
Bureaucracy Level (0-1)	-0.5688	-0.5100	-0.1593	0.3294	-0.1394	-0.0360	0.3078	0.6827	-0.0515	0.2891	-0.2368	-0.1406	0.5391	1.0000

**Table 4.5: Cross – Sectional Regression Analysis for migration outflow**

This table lists the variables used in the cross sectional regressions, the independent variables are: cash surplus, central government debt, exports of goods, foreign direct investment, GDP per capita, imports of goods, bank capital, long term unemployment, population growth, poverty, level of democracy, corruption, the t-statistics are robust for heteroskedasticity, t-values are in parenthesis. \*\*\* Significant at the one per cent level. \*\*Significant at five per cent level \*Significant at ten per cent level

<b>Panel A: Migration Outflow (Extended)</b>	
<b>VARIABLES</b>	<b>OLS Outflow</b>
Constant	-1085,065*** (0.0007)
Cash surplus/deficit (% of GDP)	-48,312*** (0.001)
Central government debt total (% of GDP)	1,025.3** (0.027)
Exports of goods and services (% of GDP)	2,602*** (0.000)
Foreign direct investment net inflows (BoP current Million US\$)	-41.18*** (0.0008)
GDP per capita	11.094 (0.631)
Ln Imports of Goods	40,333*** (0.004)
Bank capital to assets ratio (%)	-19,347*** (0.004)
Lending interest (%)	32.375 (0.408)
Long-term unemployment rate (%)	11,191*** (0.007)
Population growth (annual %)	48,722*** (0.004)
Poverty (%)	-12.308 (0.062)
Level of Democracy (%)	-8,755 (0.168)
Corruption (0-10)	-62,308** (0.018)
Bureaucracy (0-1)	-2.224 (0.497)
Observations	23
Adjusted R-squared	0.647

**Table 4.6: Shapiro-Wilk W test for normal data**

This table gives the results of the Shapiro-Wilk test for normality undertaken with the ‘swilk’ command of STATA.

<b>Variable</b>	<b>Obs</b>	<b>W</b>	<b>V</b>	<b>Prob&gt;z</b>
r	23	0.97596	0.629	0.82720

**Table 4.7: Collinearity diagnostics**

This table gives the results of the collinearity diagnostics using the ‘collin’ command of STATA’s package.

<b>Variable</b>	<b>VIF</b>	<b>Tolerance</b>
CentralGovDebt	7.67	0.130378
LnImports	8.02	0.124688
Exports	2.29	0.436681
CashSurplus	9.14	0.109409
ForeignInvest	3.50	0.285714
GDPCapita	8.30	0.120482
BankCapital	4.81	0.207900
Lending	8.08	0.123762

## **CHAPTER 5. Return Migration from Greece: Determinants that affect the phenomenon**

### **5.1. Introduction**

When the outbreak of financial crisis hit Greece in 2009, the austerity measures that the country adopted have significantly changed the current financial and social conditions, Gemi (2014). The devaluation of stock market and a reduction in asset prices led to a sharp rise in private debt in the whole country, to a sharp rise in private debt in the whole country with immediate consequences also in migrant families. There is evidence of Albanian regular migrants in Greece after the recent financial downturn, who lost their legal status and return to irregularity due to the high unemployment rates, Michail (2013). In particular Albanian migrants used to constitute by far the largest community in Greece with 449.706 in the 4th quarter of 2011, something that constituted approximately the 57% of the total migrant population and 5% of the total Greek population Triandafyllidou and Maroufouf (2012). It is well worth mentioning though that especially during the 1990s there was an overwhelming inflow of migrants from neighbouring countries who entered Greece due to their geographical proximity and the qualified consequences that market constitutes the country an ideal destination, Maroukis and Gemi (2013).

The financial crisis for Greece in 2009 has provoked rising financial and social problems for the whole country, but caused further insecurity for many immigrant workers and particularly those with Albanian origin, OECD (2012). The austerity weakness and the economic recession had negative impact on the immigrant employers who started considering abandoning their host country and returning to their home one as it was the only solution to their unemployment problem, when the Greek economy was slowing down. After suffering through very rough years in Greece, immigrant workers faced negative effects from unemployment and therefore were unable to continue working to the country. Particularly Labour Force Survey (Labour Force Survey. 2012) indicated that 36% of the migrant workers lost their legal status and decided to abandon Greece due to the rough financial situation, while ELSTAT (ELSTAT. 2013) implied that specifically the Albanian migrant population in Greece has been decreasing since 2010 for the first time in the last 20 years. In addition according to data of the Hellenic Ministry of Interior in 2011 the number of migrant



stay applications decreased from 2010 onwards.

The current explores the financial, social and institutional determinants that motivated the existing regular immigrants in Greece to abandon the country and return to their own during the financial recession period. In particular, Kirdar (2007); Ambrosini (2013); King et al., (2013); indicate the relationship of unemployment with the phenomenon of return migration. Additionally, King and Vullnetari (2012) and Mai and Paladini (2013) specify that the recent economic crisis created insecurity and imbalances to the current Greek economic social and political framework and consequently affected the growth rate of the country. These imbalances influenced significantly the capital flows of the country's economy and created a fragile economy with constant high rates of unemployment, something that facilitates return mobility to their home country. De Grauwe (2010a); Hoffmann (2013 ) demonstrate the important relationship of the central government debt with the phenomenon of migration.

Other studies that analyse the financial, social and institutional determinants, which affect return migration are by Crubel and Scott (1966); Kwok and Leland (1984); Lianos (1997); Karafolas (1998). Lastly, Hadjimichalis (2011) suggests that certain financial, social and geographical factors are significantly related with the 2009 financial crisis and led to massive migration outflows to several European regions. Furthermore, Michail (2013) and Triandafyllidou (2014) report that the recent financial and social shocks of the current economic downturn provoked significant migration returns from Greece. In fact the authors suggest that specific factors such as unemployment, low family income, high tax revenues provoke a tendency to the immigrant workers to re – strengthen contact with their networks in their home countries.

The current downturn produced high unemployment rates within the immigrant's community in Greece, Gemi (2014). As a result, the vast majority of the immigrant workers were not able to purchase the necessary social security stamps in order to maintain their residency permits, thus many of them had no other choice but to return to their home country as a survival strategy plan. This brings to the surface some very appealing questions; Which are the effects of the recent financial recession on Greek labour markets and in particular on wages and unemployment? Do the characteristic determinants ascend the phenomenon of return migration from Greece? If so, which of the financial, social and institutional factors

employed is the most prominent? Can we empirically distinguish between long term and short term effects of return migration to Greece?

In particular, research into return migration swaps is dominated by the examination of the determinants, which affect the relationship among the underlying factors and the phenomenon of return migration. We use a large and comprehensive sample of nine financial – social and institutional variables in Greece from 1990 - 2012 in order to investigate how these factors affect return migration from Greece. In an important separation from preceding studies, we solely examine different types of determinants identified on the basis of immigrants' return intentions. Indeed, through the specific quantitative methods employed we end up to most considerable understanding of the factors that influence the phenomenon of return migration.

The current study makes important contribution to the financial and sociological literature regarding the phenomenon of migration. First it provides new evidence on the effect of the economic, social and institutional determinants on migration, which shed light on the puzzling and limited data found in prior work on the subject. In particular, we find that the selected factors do affect the phenomenon of return migration, especially during the recent financial crisis. Furthermore, we present results extracted from a manual constructed database with detailed evidence on the variables that affect the return migration process from Greece. In addition, to our knowledge this is the first attempt that precisely makes an endeavour for an in depth evaluation of the determinants which play a crucial role on the return migration. Third our study offers new insights on the factors of the decision of existing immigrants in Greece to return back to their home countries, as until now there were limited. Our findings have important interference in the academic society as we provide a research during the harsh fiscal situation in Greece. Furthermore, the current study enables through the exclusive database to focus solely on the factors that motivate immigrants with different behavioural patterns to return to their home regions.

As Seguino (2010); Bijwaard and Van Doeselaar (2014); Carling and Pettersen (2014) empirically examine the causal effect of the financial, social and institutional variables within economic recession. We seek to update their work by applying a comprehensive database of Greek data extracted from accurate organizations and offer new evidence on the correlation of the employed determinants with the return migration process.

The rest of the chapter is classified as follows. Section 5.2. describes our sample. Section 5.3 seeks the effect of the selected variables on immigrants to return to their home countries. In section 5.4 we relate the general analysis plan of Chapter 2 with our chapter and present our results in section 5.5 and finally conclude this chapter with the discussion section 5.6.

## **5.2. Theoretical Framework**

As return migration is planned in the vast majority of the cases with an ultimate goal to maximise life time utility, immigrants decide to leave due to higher preference for consumption in their own region instead in the host country, Galor and Stark (1991); Dustmann and Weiss (2007). In this set up push and pull theory that is based on Ravenstein's laws of migration is the most dominant one as supports that migration is motivated by lifetime utility that include fixed factors which play a crucial role on the mobility decision. These determinants, which include particularly financial and social advantages to immigrants, encompass high cost of living, low family income, Dustmann (2003). Family and lifestyle characteristics that increase the return motive, Gibson et al., (2014) are economic and institutional factors that pushed the immigrants out of their host country and influenced their return decision.

Several academic scholars such as Labrianidis and Vogiatzis (2013a); Bijwaard et al., (2014); Gemi (2014) offer detailed empirical investigations on the phenomenon of return migration and concentrate their studies on the effects of the recent financial crisis on the aforementioned transnational practises. Especially on this chapter we focus on the financial, social and institutional variables that motivated the already immigrant workers in Greece during the crisis to utilise their family network and return to their home countries. Indeed, Gedeshi and De Zwager (2012); Gemi(2013); King et al., (2013), as well as Carling and Pettersen (2014) suggest that when immigrants consider to return to their source countries, they are influenced by a number of factors that affect the migration duration. The phenomenon of migration may receive many and different forms. An indicative classification of forms of migration is provided in Table 5.1.

### 5.3. Hypothesis development

A great number of researchers report how several determinants interact in shaping return migration intentions. Carling and Pettersen (2014) suggest that return intentions vary by educational fulfilment, as the highest likelihood of intending to return is found individuals with a medium – level education. Additionally, Dustmann (2003) and Carling et al., (2012) indicate that economic resources have a clear effect on return intentions. In particular, we focus on the financial, social and institutional variables that play a significant role in the development of return migration in Greece during the recent financial crisis and reveal the applicable indicators that motivate migrants to return to their countries of origin.

We examine determinants in our analysis namely, growth rate of GDP, central government debt, total reserves, unemployment, market capitalization of listed companies, corruption, bureaucracy, poverty and tax revenue in order to reflect the strength of relationship between these determinants and return migration intentions.

The current sovereign debt crisis which had its epicentre since 2008 in the euro area and particularly in Greece, provoked a long term impact on country's growth rate Schlarek (2004); Reinhart and Rogoff (2010); Kumar and Woo (2010).

It is worth indicating that the sharp increase in Greece's sovereign debt as a result of the recent financial crisis had broader impacts on the country's growth, which respectively augmented economic and social inequalities, such as high taxation and interest rates, higher inflation and unemployment rates and obvious greater uncertainty of social cohesion. Likewise, has been hit severely by the crisis and its debt ratios were elevated, something that created an increase in the current financial imbalances Reinhart and Rogoff (2012) and consequently deeply affected the immigrant families who abandon Greece to pursue work opportunities in their source country's Gemi (2014).

*H<sub>1</sub>: We hypothesize a negative regression coefficient for the GDP growth in Greece explaining that the return migration flows from Greece would increase when GDP growth decreases.*

Central government debt has received a significant attention among scholars particularly during the recent financial recession, as it plays a crucial role in the context of

economic growth of a country Afonso and Jalles (2013); Gomez and Rivero(2013). After a long period of financial stability and austerity, the recent economic crisis that began in the third quarter of 2008 had disastrous consequences for national economies within the European Monetary Union and especially Greece. Damette and Fromentin (2013) ; Corsetti et al (2012); Reinhart and Rogoff (2010); Afonso and Jalles (2013) discuss the importance of central government debt and consider it as a significant constant of their analysis, as they suggest it affects considerably investment and consumption. As a result, higher rates of central government debt provoke less employment and lower productivity growth.

Furthermore, OECD (2013) shows that the economic recession in the EU member states, but especially in Greece, had major effects in the central government debt, which automatically elevated financial and social imbalances, with obvious considerable consequences in social cohesion of the country. The financial recession had severe effects on migration, Ahearne et al., (2009); Dustmann et al., (2010) as the vast majority of them reacted to the economic shock in a different extent than the resident population and decided to return to their home regions

*H<sub>2</sub>: We hypothesize a positive regression coefficient for the central government debt in Greece explaining that return migration flows from Greece would increase when the central government increases.*

According to World Bank orientation, total reserves constitute holdings of monetary gold, special drawing right and holdings of foreign exchange under the control of monetary authorities.

As the slowdowns of total growth contributed to substantial increases in unemployment and imbalances of payments and as the migrants' community is far more vulnerable than the natives, a great number of immigrant workers decided to seek for work opportunities back home.

*H<sub>3</sub>: We hypothesize a negative regression coefficient for the total reserves in Greece explaining that return migration flows from Greece would increase when the total reserves decrease.*

According to Nkovo and Uko (2012) the recent financial crisis had a contagious effect with dramatic consequences to the economic and social cohesion of the countries hit by the recession, with severe impacts on several financial indicators such as commodity prices, market capitalization, exchange rate and trade flows. The Southern European countries, especially Greece, which was the most vulnerable by the crisis, the market capitalization of listed companies had a significant decline something that created an unfavourable investor sentiment. This resulted in rough financial instability, severe recession within the country with development vulnerable to reversals. Therefore, alongside the Greek native population who decided to abandon its country and migrate in order to improve the quality of its life Eurostat (Eurostat. 2013) there is evidence that a great number of unemployed immigrants rethink the solution of return to their home regions in order to pursue higher wages and more benefits.

*H<sub>4</sub>: We hypothesize a negative regression coefficient for the market capitalization in Greece suggesting that return migration flows from Greece would increase when the market capitalization decreases.*

The financial crisis in the Mediterranean countries of Europe has implicated major threats to the economy of the vast majority of the developed countries and has weakened the socioeconomic status of individuals Maddaloni and Peydro (2009); Karanikolos et al., (2013); Gemi (2014). The Financial Crisis Inquiry Commission in 2011 implies that the recent recession was caused by a plethora of investments in mortgage – backed securities based on valuations of high – risk mortgages that were poorly administered. As a result, a rise in interest rates led to borrower defaults, something that resulted in bank defaults and a crash in the housing and stock markets. Moreover, Reinhart and Rogoff (2009) indicates that the economic recession had devastating consequences on falling tax revenues and increased spending, something that led to increased unemployment and severe austerity measures in order government to make large cuts to public expenditures.

As a consequence, high tax revenues provoked also social and political disintegration within the country's borders. Tax evasion led to serious socioeconomic imbalances with high inequality and poverty rates, Matsaganis (2013) something that obliged not only Greek natives, but further existing immigrants to reconsider their stay in Greece and renege to their home countries in order to improve the quality of their life Gemi (2013); Triandafyllidou

(2014).

*H<sub>5</sub>: We hypothesize a positive regression coefficient for the Tax revenues in Greece describing that return migration flows from Greece would increase when Tax revenues increase.*

The current financial recession that started in the third quarter of 2008 had dramatic consequences on the financial performance of national economies and labour productivity Damette and Fromentin (2013); Choudhry et al., (2014). The scholars indicate that during the crisis not only nationals, but also immigrant workers faced a high risk of losing their employment, as they were employed in sectors that have been mainly affected by the recession. Accordingly, Kentikelenis et al., (2011) in their study regarding the factors that have been influenced by the crisis, show that demographic and socio – economic factors in Greece, such as unemployment and health had an immediate association with the recession. Furthermore, Scarpetta et al., (2010) suggest that during the recent economic downturn, the decrease of GDP converted into a reduction of labour demand, something that consequently led to unemployment, while accordingly Paul and Moser (2009); Karanikolos et al., (2013) suggest that the economic crisis had pronounced severe effects on social and economic austerity of Greece, including health and unemployment.

Squires et al., (2009); Seguino (2007); Seguino (2010) imply that the recent downturn resulted in employment losses and deceleration in labour growth. As many developing countries including Greece face debt payment difficulties, will continue to be in recession for some time. As a consequence, the authors sustain that the loss of public sector revenues, due to decreasing income tax revenues and the wage cuts had an important impact on the increase of return migration.

*H<sub>6</sub>: We hypothesize a positive regression coefficient for the unemployment rate in Greece explaining that return migration flows from Greece would increase when unemployment rate increases.*

Ifanti et al., (2013) suggest that it is evident that Greece was affected more than any other European country by the financial crisis and imply that unemployment, income reduction and poverty are among the most serious consequences of the economic downturn

on socioeconomic life. Alongside, the implications of the austerity measures adopted, have dramatically changed the socioeconomic conditions of the migrant families in Greece, with the vast majority of them to consider leaving the country and seek for new work opportunities in their home region Gemi (2014).

Consequently, due to the recent economic downturn, unemployment high inflation rates and high poverty rates changed immigrants plans who considered leaving Greece and move back home in search of better employment prospects Acit (ACIT (Albanian Centre for Competitiveness and International Trade). 2012); Gemi (2013); Triandafyllidou (2014).

*H<sub>7</sub>: We hypothesize a positive regression coefficient for the levels of poverty in Greece explaining that return migration flows from Greece would increase when level of poverty increases.*

The recent economic crisis has incorporated factors that are significantly correlated not only with economic and financial indicators, but also with institutional ones, such as levels of bureaucracy and corruption Aisen and Veiga (2011).

In addition, Ariu and Squicciarini (2013) indicate that there is a strong relationship between corruption and migration decisions as especially during rough economic periods high-corrupted areas are unattractive regions for development. Alongside, King et al., (2008) implies that return migration of Greek Americans and British born Greek-Cypriots back to their home regions was strongly affiliated with experiences of unemployment, irritation with bureaucracy and corruption.

*H<sub>8</sub>: We hypothesize a positive regression coefficient for the corruption rate in Greece explaining that return migration flows from Greece would increase when corruption rate increases.*

The financial recession that began in mid-2008 has had significant implications not only on national economies, particularly of Southern Europe, but also on institutional indicators, such as the level of bureaucracy. Not only Greek nationals individuals but also immigrant families with dramatically lower incomes and daily wage cuts, decided to leave Greece and utilize their family networks in order to return to their home countries as a survival strategy plan Gemi (2014). In addition, the government weakness, due to high



bureaucracy, to purchase again the social security stamps to unemployed immigrants in order to maintain their residency permits for themselves and their families, unstrengthen migrants decision to return back to their home regions and initiate a new life without the governmental and financial uncertainty Maroukis and Gemi (2013).

*H<sub>9</sub>: We hypothesize a negative regression coefficient for the levels of bureaucracy in Greece explaining that return migration flows from Greece would increase when level of bureaucracy decreases.*

#### **5.4. Analysis Plan**

Regarding the phenomenon of return migration, a 1990 – 2012 dataset has been employed from official and accurate organizations, such as the Greek Statistical Authority. We seek to determine the causal effect of several significant financial, social and institutional indicators on the return migration intensity of immigrants, so the empirical challenge arises from the potential correlation between the factors and the migration process, which would astounded the seminal effect. We include nine independent variables in our analysis, which were obtained in yearly basis in order to approach the annual differences and the implications they have created due to the recent financial crisis. The variables employed comprise growth rate of GDP, central government debt, total reserves, unemployment, market capitalization of listed companies, corruption, bureaucracy, poverty and tax revenue. The most important objective of our analysis is to encounter the relationship between the abovementioned variables and return migration intentions from Greece.

Financial, social and institutional indicators imply a correlation between the employed variables and the return migration flows from Greece. In our case the coefficients engaged regarding Greece, will be tested all through a present period. Our regression model will be used to determine whether an association exists between the selected variables and immigrants' return intention, allotting one regression for each observational unit. Therefore, the adoption of statistical software package Stata 13 will assign our method easily, thus to obtain an efficient running econometric analysis of our data.

The equation below provides the interpretation of this model with the inclusion of the causal variables used into the analysis.

$$Mig_t = \alpha + \beta_1 GDPGrRate_t + \beta_2 CentGovDebt_t + \beta_3 TotRes_t + \beta_4 MarkCap_t + \beta_5 TaxRev_t + \beta_6 Unemp_t + \beta_7 Pov_t + \beta_8 Cor_t + \beta_9 Bur_t \quad (4)$$

where t takes values from 1990 up to year 2012

### 5.5. Regression Analysis - Results

In this part of our study we will make an attempt to evaluate the outcomes we will withdraw during the empirical analysis. In addition, the analysis section contemplates the period of the recent financial crisis in Greece and it is more than obligatory to acquire a constant empirical analysis and discover the vulnerability of the employed variables, therefore a cross - sectional analysis has been employed, by using an OLS model.

In order to interpret the analysis, we observe the period between 1990 – 2012, as it is more than necessary to explore the behaviour of each employed financial, social and institutional factor.

The first variable shows the GDP growth rate of Greece. It is obvious that during the present period of financial recession, Greece has very low levels of growth rate at only 1%. This result affirms that the country is extremely affected by the economic crisis with prolonged period of low growth and high inflation rates. Further, the second factor concedes how the central government debt had a severe impact in Greece within the years of financial recession and suggests that the variable has a harmful effect on long – term growth. In addition, coefficient three shows the rates of total reserves in Greece for the specific period of time. Particularly, this result suggests that as Greece addresses decline in total reserve rates, this simultaneously influence the country's borrowing and interest rates by altering the amount of funds available for banks to make loan with. Moreover variable four describes the unemployment rate in Greece. This recommends that high unemployment levels have a significant impact on several financial and social phenomena within the country's borders, such as migration flows, not only of the Greek natives, but also of the existing immigrants. Besides, coefficient five shows tax revenue levels in Greece, something that proclaims that as country faces the harsh economic challenges due to financial crisis, high tax revenues translate to inadequate incomes and poverty, something that leads in low productivity and competitiveness.

Variable six presents the corruption levels for Greece. It can be evoked that the

country experiences significantly high levels of corruption rate as the mean of the coefficients is at 4.4 while the corruption index suggest that a corruption clean country is at 10.00. Likewise, variable seven shows the mean of the market capitalization of listed companies. It is clearly shown that the determinant's level for Greece is significantly low at 39.8%. Accordingly this decent of the Greek capitalization enraged a significant enraged an important effect on the financial cohesion of the country as the economic prosperity started to decline. Furthermore, variable eight demonstrates the Greek bureaucracy level, which indicates the governmental system that has an excessively close adherence to incompetent procedures. As the mean of the coefficient is relatively high due to the economic abyss of the country with an unhealthy government and business sector, Greece's debt crisis has been doomed by high rates of inflated bureaucracy and poor productivity. Finally, factor nine appraises the mean of the poverty rate in Greece. The comparatively high mean of the determinant at 19.5% entails that the financial recession increased the level of poverty and social inequality in the country, something that affected positively the population mobility in order to invest in growth and packages to more economically stabilized countries.

Consequently, from all the above, we encompass that Greece has low rates within its financial social and institutional coefficients for the pre-set period, something that is due to the fact that the country encountered high disclosure in financial crisis.

We proceed to the empirical analysis in which we examine the relationship between the coefficients and the return migration process in Greece in multivariate OLS regression analysis. Table 5.3 shows the outcome of the OLS regression model and includes as well as the p values that signify the correlation of each factor of the model. Regarding our model, in which our main variable of interest is return migration, we use the utilised determinants and assimilate them with statistical package Stata 13.

As it appears from the OLS model considering immigrants' return intentions from Greece, the most significant factors that affect the phenomenon are tax revenue, corruption, GDP growth rate, market capitalization, total reserves and bureaucracy since they have a lower p value than 5% significance level. It can be denoted from the coefficients that tax revenue is positively related to return migration by 0.029, as does the corruption rate by 0.096. On the other hand, GDP growth rate, market capitalization, total reserves and bureaucracy are negatively related to the return migration number, which means that if one unit of tax revenue increases, one unit of corruption increases and one unit of bureaucracy

level decreases by the abovementioned coefficients. In contrast, there is no effect of poverty and unemployment rate in decisions of existing immigrants in Greece to return back home.

Reinhart and Rogoff (2009); European Commission (2009); Karanikolos et al., (2013) argue that during the economic crisis in Europe and specifically in Greece, there has been an increase in tax revenues, something that provoked a default in financial cohesion of the country and resulted in high immigrants' return outflows. Consistently, Siegel and Bakker (2015) illustrate that high corruption rates have an influence on the choice of immigrants to return to their home countries, while in the same spirit Mitsopoulos and Pelagidis (2011) suggest that corruption rates in Greece especially during the collapsed Greek economy had a strong impact on productivity and growth with unavoidable consequences on migration outflows.

Conversely, bureaucracy rate and market capitalisation are negatively related to return migration. These results indicate that if one unit of these variables decreases, then the existing immigrant outflows increase. This is consistent with Ballas et al., (2012) who support that low levels of market capitalization of listed companies in the Athens Stock exchange due to the crisis provoked high economic insecurity, which simultaneously affects the social cohesion of the country. Indeed, Beber and Pagano (2013) imply that low levels of market capitalization irritate a weakness in financial heterogeneity of a country with further infrastructure in social cohesion inciting thus capital short fall in the peak of the crisis and lower competitiveness.

Further, as stated in our methodological description in chapter 2, we inspect normality and collinearity.

We generated residuals with STATA and used the Shapiro-Wilk W test for normality as shown in Table 5.4. We obtained large p-value indicating that we cannot reject that residuals are normally distributed.

Moreover, we also checked multicollinearity by using the package COLLIN to compute variance inflation factors (VIF) for the variables. Table 5.5 shows that all VIF factors are under the tolerance level of 10, thus there is no need of further investigation about collinearity problems.

## **5.6. Discussion - Conclusions**

We made an attempt to find out how the financial, social and institutional

determinants employed interact in shaping return migration intentions from Greece. A natural question that arises from our findings is why Greece has been that exposed to the recent economic crisis, something that unavoidably led to high migration outflows, not only of natives, but of existing immigrants also. The outbreak of the financial recession in Greece in 2009 in accordance with the harsh austerity measures adopted, have significantly changed the economic and social background of the country and impacted as well the migrant families Gemi (2014). What began as economic recession for Greece in 2009, has caused high financial dependency of the country, something that led to rising economic, social and legal insecurity not only for native individuals but also for the vast majority of immigrant workers Featherstone (2011); OECD (2012). Furthermore, Labour Force Survey (2012); Gemi (2013) imply that the austerity fatigue due to the financial recession impact negatively immigrants who decided to abandon the country in order to recover from the crisis. In this respect, the advent of the recession has changed Greek economic, social and political circumstances, something that marginalized the economic and social stocks of the immigrants who sought to reconsider their stay in Greece and head back to their home countries to look for an improved life Gemi(2013); Triantafyllidou (2014).

Moreover, a significant number of our employed variables, such as tax revenue, corruption and total reserves are strongly correlated to the phenomenon of return migration from Greece. In particular, Muldoch in 2008 argues that the recent financial crisis provoked severe problems in Greece with a significant fragile economy and considerably low total reserves. As a result, return migration outflows from the country increased in response to the dramatic circumstances. Additionally, Frankel and Saravelos (2011) indicate that during the recent recession in Greece, leading indicators of the economy, such as total reserves provoke vulnerability and imbalances within the country's borders, something that persuaded not only Greek natives, but also immigrants to leave in order to obtain possibilities for prosperity.

Accordingly, Tornell and Westermann (2012) designate that Greece after the outbreak of the financial crisis addressed a sharp decrease in total reserves, something that had a significantly negative impact to the related activities that served to maintain confidence and security to the country's currency and economy. Further complicating this situation, the existing immigrant workers in Greece re – established and strengthened ties to their networks in their home countries as the thoughts of return increasingly controlled ACIT (2012). As well as King et al., (2008) suggest that owing to the economic crisis, the already existing immigrants to Greece had significantly negative experiences in assessing employment,

frustration with bureaucracy and a culture of corruption. As a result, the vast majority of them contemplated their return to their home countries.

Our findings are new to the existing literature. Even though there are some previous findings, nonetheless it is almost impossible to compare the current results to prior literature as there is no a precise consideration of the effect of each determinant to the migration intentions. As a consequence, our outcomes are able to comprehend the existing evidence by providing new findings on the financial, social and institutional variables that impact the phenomenon of return migration from Greece.

**C1:** The GDP growth rate variable is highly statistically related to the level of return migration outflows accuracy at one per cent level and positively consistent with the hypothesized negative sign, suggesting that lower growth rates tend to increase return migration intentions. Thus, our finding is constant with Attinasi et al., (2009); Checherita and Rother (2010); Baum et al., (2012) who suggest that lower levels of growth rate provoke lower levels of economic prosperity and severe effects on social cohesion of a country. The result confirms conjecture one.

**C2:** The effect of central government debt variable is positive and statistically related to the level of return migration accuracy at 1 per cent level. Therefore, this suggests that higher central government debt rates have a tendency to increase return migration intentions from Greece. The result, lines up with the findings by Kumar and Woo (2010); Reinhart and Rogoff (2010); Sakelaropoulos (2010) who report a positive association between the central government debt and economic prosperity in Greece, which would motivate not only Greek natives, but also immigrants to abandon the country for a more thriving future. The result do confirms the second hypothesis.

**C3:** The coefficient for total reserves is statistically in accordance with the level of return migration accuracy at 5% level and is consistent with the negative sign of our hypothesis. This result is in line with our evidence demonstrating that lower rates of total reserves provoke higher rates of return migration outflows from Greece. Our result is consistent with Philip and Ferretti (2008) who report a strong association between the low rates of total reserves and the economic prosperity of Greece, which would consequently motivate not only Greek natives but also immigrants to abandon the country. The result does

confirm the third hypothesis.

**C4:** The unemployment determinant appears to be statistically insignificant with the return migration intentions from Greece, with an inconsistent hypothesized negative sign. Our outcome fails to have a positive association with Verick (2009); Karanikolos et al., (2013); who argue that economic recession that consequently provoked high unemployment rates led to elevated immigration mobility. Our evidence rejects conjecture four.

**C5:** Third, the market capitalization of listed companies variable has a significant effect on return intentions and it is perpetual with our expectations for negative relationship with the phenomenon. This finding is related with Cochrane (2010); Afonso and Gomez (2012); Mink and De Haan (2013) who indicate that lower levels of market capitalization of listed companies provide an important motivation for immigrants to return back home. This confirms hypothesis five.

**C6:** Sixth, immigrant workers who were admitted to a country with significantly high corruption rates are more likely to have return intentions. In particular, the coefficient for corruption is strongly statistically related to the level of return migration accuracy at 1 per cent level, suggesting that during the recent financial crisis the governmental policies did not have any accurate system to reconcile the irregular status of the immigrants, thus the vast majority of them did not have other choice but to utilize family networks back to their home countries as a survival strategy plan. Our argument confirms evidence by King et al., (2008); Gemi (2014) that higher corruption rates tend to increase return migration outflows. There is support for conjecture six.

**C7:** The bureaucracy coefficient is negative consistent with our expectations for positive relationship with return migration outflows, though highly significant at 1 per cent level. This finding proves fruitless in explaining the evidence that indicates that higher levels of bureaucracy would increase immigrants' return intentions. The result does not confirm the seventh hypothesis.

**C8:** Eighth, poverty has no clear effects on the intentions for return migration. Including this variable hardly improves the explanatory power of the model. Even though the coefficient for poverty is consistent with the hypothesized positive sign, it is statistically insignificant. This result shows that poverty factor proves futile in explaining the return migration accuracy. The outcome contradicts Kondilllis et al., (2013); Tacolli et al., (2015);

Tacoli et al., (2015) that there is an association between poverty variable due to the economic recession in Greece and alteration in social cohesion of the country. The result rejects conjecture eight.

**C9:** The coefficient for tax revenue is highly statistical related to the level of return migration outflows at 1 per cent level, suggesting that the highest likelihood of indenting to return is found when the tax revenues tend to increase. The coefficient for tax revenue variable has the same positive sign with our prediction. Therefore, our finding is in accordance with the outcomes repeated by Matsaganis et al., (2012); Matsaganis and Leventi (2013); who report that higher tax revenues provoke lower levels of economic growth and competitiveness and stern results to social coherence of Greece. The result confirms conjecture nine.

The correlation matrix of the above variables is presented in Table 5.3. The correlation coefficient for Growth Rate – Market Capitalization is positive at 0.51 and significant at 1 percent. The highest correlation is the one between Tax Revenue – Government Debt with a positive coefficient of 0.77. The second highest correlation exists between Tax Revenue and Poverty with a coefficient of 0.68.

Beyond findings, we have made more general and theoretical contributions to the study of return migration. Contrary to prior findings, this chapter provides new evidence and the argument that the phenomenon of return migration is neither related in a predetermined way nor with unemployment rates nor poverty levels, but with tax revenue, corruption and government debt. We suggest from the current analysis that the financial crisis that has overwhelmed Greece in 2009, has raised concerns about the financial and social cohesion of the country as the strict fiscal measures adopted changed dramatically the background of the country. Consequently, this situation had a strong negative impact in the behaviour of each financial, social and institutional determinant, with immediate result to the migrant families. This translates into immigrant workers lost of their legal status and disintegration. As a result, the vast majority of the existing immigrants drew on family and pursue an improved quality of life back to his home country.

In response to the questions raised in the introduction of the current chapter, our results indicate that tax revenue, corruption rates and central government debt do have a



significant effect on the return migration intentions from Greece, while the recent financial crisis has caused rising economic, social and legal imbalances for many immigrant workers. Even though financial crisis according to prior literature worsened the socio – economic conditions in Greece especially for immigrants with serious wage cuts and a great impact on employment sector, economic resources, such as poverty and unemployment have no clear effects on return migration in our analysis. The low wages in Greece can be an offset, as well as unemployment, something that provoked an increase in participation in these transnational practises.

**Table 5.1: Descriptive statistics for the period 1990 – 2012 in Greece**

The demonstrates the descriptive statistics, such as the mean and the standard deviation that are critical to access a general idea regarding the behaviour and the differences between the variables during the economic downturn in Greece. Furthermore, the following table encloses the mean, the standard deviation and the minimum – maximum number of each determinant's observation.

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Median</b>
Return Migration	16,784	14,202	4,082	50,150	50,150
GDP Growth Rate (%)	1.0	4.0	-8.9	6.6	2.6
Central government debt total (% of GDP)	121.4	18.7	89.1	170.8	125.5
Total Reserves (in millions)	8,683	5,425	2,287	19,352	6,376
Market Capitalization of Listed Companies	40	32	8	143	24
Tax Revenue	20.1	1.3	17.8	22.8	19.8
Unemployment Rate	11.9	5.5	7.6	29.4	9.9
Poverty	19.5	2.4	13.7	23.1	20.1
Corruption	4.4	0.5	3.3	5.4	4.3
Bureaucracy	0.6	0.1	0.4	0.8	0.6

**Table 5.2: Pearson Correlation Matrix**

This table lists the correlations among variables used in the cross sectional regressions.

	<b>Growth Rate (% of GDP)</b>	<b>Central government debt total (% of GDP)</b>	<b>Total Reserves (in millions)</b>	<b>Market Capitalization of Listed Companies</b>	<b>Tax Revenue</b>	<b>Unemployment Rate</b>	<b>Poverty</b>	<b>Corruption</b>	<b>Bureaucracy</b>
<b>GDP Growth Rate (%)</b>	1.000								
<b>Central government debt total (% of GDP)</b>	-0.2489	1.000							
<b>Total Reserves (in millions)</b>	0.1152	-0.1707	1.000						
<b>Market Capitalization of Listed Companies</b>	0.5163	0.3438	-0.0006	1.000					
<b>Tax Revenue</b>	-0.1016	0.7716	0.0664	0.4859	1.000				
<b>Unemployment Rate</b>	-0.6225	0.6469	0.0841	-0.0826	0.5233	1.000			
<b>Poverty</b>	-0.0274	0.6645	-0.0473	0.3823	0.6876	0.4580	1.000		
<b>Corruption</b>	0.6801	-0.4090	0.2334	0.3361	-0.3118	-0.5689	-0.0297	1.000	
<b>Bureaucracy</b>	0.4756	-0.7654	0.5379	-0.1730	-0.6254	-0.5860	-0.5454	0.5727	1.000

**Table 5.3: Cross – Sectional Regression Results**

This table lists the variables used in the cross sectional regressions, the independent variables are: Growth Rate, Total Reserves, Market Capitalization, Tax Revenue, Corruption Rate, Bureaucracy, Poverty, Unemployment Rate, Central Government Debt, the t-statistics are robust for heteroskedasticity, t-values are in parenthesis. \*\*\* Significant at the one per cent level. \*\*Significant at five per cent level \*Significant at ten per cent level

VARIABLES	OLS Regression	Bootstrapping
	(1) RetMig	(2) RetMig
Constant	5.895*** (0.000)	60,181.5 (0.391)
GDP Growth Rate (%)	-0.0309*** (0.00003)	-2,094.44*** (0.000)
Central government debt total (% of GDP)	0.000249*** (0.002)	47.484 (0.693)
Total Reserves (in millions)	-0.201** (0.0252)	-6,635.891*** (0.018)
Market Capitalization of Listed Companies	-0.00085** (0.0319)	-18.844 (0.723)
Tax Revenue	0.0289*** (0.0009)	875.995 (0.516)
Unemployment Rate	-0.00519 (0.455)	-209.697 (0.786)
Poverty	0.0103 (0.178)	4,309.774** (0.047)
Corruption	0.0958*** (0.0034)	3,597.91 (0.298)
Bureaucracy	-1.491*** (0.00002)	-25,214.79 (0.230)
Observations	46	46
Adjusted R <sup>2</sup>	0.648	0.632

**Table 5.4: Shapiro-Wilk W test for normal data**

This table gives the results of the Shapiro-Wilk test for normality undertaken with the ‘swilk’ command of STATA.

<b>Variable</b>	<b>Obs</b>	<b>W</b>	<b>V</b>	<b>Prob&gt;z</b>
r	18	0.96323	0.808	0.66499

**Table 5.5: Collinearity diagnostics**

This table gives the results of the collinearity diagnostics using the ‘collin’ command of STATA’s package.

<b>Variable</b>	<b>VIF</b>	<b>Tolerance</b>
GDP Growth Rate (%)	5,99	0,166945
Central government debt total (% of GDP)	2,37	0,421941
Total Reserves (in millions)	4,89	0,204499
Market Capitalization of Listed Companies	3,49	0,286533
Tax Revenue	4,01	0,249377
Unemployment Rate	1,45	0,689655
Poverty	5,48	0,182482
Corruption	3,48	0,287356
Bureaucracy	7,43	0,13459

## **CHAPTER 6. General Discussion**

In the aftermath of the credit recession the effects of the financial squeeze alongside with the austerity measures adopted have provoked enormous market collapses and altered significantly the economic and social conditions of individuals. Apart from the unparalleled volatility in global financial markets and economies worldwide that the recent financial crisis triggered, it has also caused rising and political defaults. This thesis analyses the evolution of migration performance after the immediate hit of the financial recession that began in the third quarter of 2008 and had distressing consequences for national economies and workers in industrialized areas. Our report first investigates the various financial determinants that affected the economic situation in Europe and therefore the migration process. It follows an historic review on migration evolution and how the financial crisis played a key role on individuals' decisions to abandon their home country and search abroad for an improved future. We then determine and analyze the factors that influence the emigration mechanism in Greece. Finally, we integrate the relation of predetermined variables with the phenomenon of return migration from Greece due to the implication of the financial crisis. Motivated by the widely accepted observation that the financial downturn had multiple implications, the thesis shedded new light on i) modeling migration management (by using multiple regression analyses and extracting all the significant coefficients) in selected European countries and Greece; ii) identifying the role of determinants related with the phenomenon of migration; iii) capturing the regime dependent behaviour of migration. This chapter discusses the most important findings, implications and limitations of the thesis and provides scope for further research.

### **6.1. Financial and Social Determinants that affect the phenomenon of Migration in Europe**

#### **6.1.1. Empirical Findings**

The thesis models migration management via employing a number of financial variables for the euro area and by constructing a unique database with a large and comprehensive sample of 15 European countries from 1990 – 2012. In contrast to the existing literature, we separately divided these countries into three groups (Weak EMU, Strong EMU and Non-EMU) in order to investigate the behaviour of each group during these periods. The findings provide novel evidence on the effects of the employed variables on migration flows

under severe financial conditions.

In response to the issues raised in the introduction of the thesis, the findings have important implications for understanding the phenomenon of migration and for analyzing policies designed to provoke financial and social cohesion in the euro area. Specifically, the empirical results reveal that Weak EMU countries (Greece, Italy, Ireland, Portugal and Spain) are significantly more exposed to the financial recession, while contrary Strong (Austria, Belgium, Germany and Netherlands) and Non EMU countries (Denmark, Norway, Sweden, Swiss and the UK) are not so bared to the crisis and are in a enhanced financial position compared to the weak group. Thus, we conclude that countries, which are not included in the EMU are in an elevated financial situation as they are more independent regarding the monetary policy, something that does not exist within the euro zone.

Moreover, by deliberating the cross – sectional analysis we observed that some of the employed variables such as GDP growth rate inflation rate and imports of goods are positively related to migration, while on the other hand 10 year government bond yield is negative affiliated to the phenomenon. Interestingly, the findings reveal that countries that belong to the PIIGS are exposed to high levels of uncertainty and insecurity, Finally, it is evident from the results that unemployment rate is a significant variable that affects the phenomenon of migration during the whole period of the analysis, implying that the disproportionate risk of losing a job has a strong impact on migration intentions.

### **6.1.2. Policy Implications**

The thesis enlightens the nature of migration process and provides new perspective on the domino effect of the financial crisis in the economic and social aspects of society. Specifically, the financial determinants employed shed light on the limited evidence found in prior international literature on the subject. Moreover, the thesis offers new insights on the importance of managing migration. Specifically, we present results extracted from a hand-composed database with detailed information on the factors that influence the migration process in 15 European countries. Furthermore, the findings complement and extend existing works as we offer new perceptions on migration figures whilst until now there were limited to the countries of the British Commonwealth. Thus, our outcomes target international academic community and individual institutions, as they must take into account the incentive, built it up a d seek for more data on human migration in the future.

## **6.2. A Financial Explanation of the Phenomenon of Emigration in Greece**

### **6.2.1. Empirical Findings**

The thesis also examines the regime – dependent variable of emigration in relation to selected financial, social and institutional factors that motivate Greek nationals to leave their country and search for wealthier destinations during the crisis. The model sheds light on the significant high amounts of human mobility to more affluent regions in the world as Greek natives decided to choose migration outflows as an adjustment mechanism in the wake of financial recession. Furthermore, the results assert the feedback hypothesis, while also imply that as Greece was in a severe financial situation due to the financial meltdown and was dependent on the monetary policy support, the country experienced drastic and major changes on its social cohesion. Thus, we identify that exports of goods, imports of goods, long term unemployment and population growth are positively affiliated to migration outflows from Greece, while on the other hand, cash surplus, foreign direct investment and bank capital are negatively associated to the phenomenon. Therefore, this provides novel evidence that as the period of rapture has been notably altered in Greece with periods of uncertainty and instability to follow, Greek natives migration could be an effective solution to respond to financial and social imbalances Brauning and Majowski (2011).

In response to the questions raised, the empirical results provide strong evidence that some of the predetermined coefficients have a significant impact on the emigration from Greece, while the recent financial downturn brought harsh economic and social changes with enormous influence on migrants' moves. In particular, the financial recession interacted to the fiscal authority of the country with economic shocks and weak social protection, something that ultimately posed risks to social consistence of the country. Thus, the thesis provides also scope for migration strategies not only in Greece but also in the Euro Area. Indeed, socioeconomic variables such as unemployment, cash surplus and foreign direct investment can be employed for further research development of the subject.

### **6.2.2. Policy Implications**

Whilst, the financial crisis affected disproportionately the “periphery” economies this led to increased tax levels and high unemployment rates in Greece. The results suggested that



Greek nationals' elevated mobility was an regulation instrument in the sudden hit of the economic downturn in order to face the financial shock of the country. Even though Greece used to be again in the past a traditional emigration country since the end of 19<sup>th</sup> century, nowadays due to the impact of the crisis the country experiences an expansion in emigration outflows to regions that the recession hit the lowest Elsner and Zimmermann (2013).

Furthermore, the documented emigration can be explained by significant variables that influence the phenomenon over the last 20 years and have a special emphasis on the recent financial recession. It is explained by the current analysis that Greece was very exposed to the downturn and thus had a strong impact on the decision of Greek natives to emigrate. Therefore, Greek and EU policy makers should consider alternatives to bail – out strategy so as to minimize emigration outflows and offset the risk of the social disequilibrium of the country.

### **6.3. Return Migration from Greece: Determinants that Affect the Phenomenon.**

#### **6.3.1. Empirical Findings**

Moreover, the thesis models and examines the financial, social and institutional determinants that motivate the existing regular immigrants in Greece to abandon the country and return to their own during the financial recession. In contrast to the majority of the existing empirical literature the thesis uniquely examines a set of different variables on the basis of immigrants' return intentions. Furthermore, the thesis presents results extracted from a manual constructed database (as stated in Chapter 2) with detailed evidence on the variables that affect the return migration from Greece. The empirical results provide strong evidence related in a prearranged way neither with unemployment rates nor poverty, but with tax revenue, corruption and government debt. The thesis captures synchronically the situation in Greece since 2009, which has raised concerns regarding the financial and social cohesion of the country, something that had strong negative impacts in the behaviour of the financial, social and institutional determinants with immediate consequences to migrant families.

In response to the questions raised in the introduction of the current chapter, our results indicate that tax revenue, corruption rates and central government debt do have a significant effect on the return migration intentions from Greece, while the recent financial crisis has caused rising economic, social and legal imbalances for many immigrant workers.

Even though financial crisis according to prior literature worsened the socio – economic conditions in Greece especially for immigrants with serious wage cuts and a great impact on employment sector, economic resources, have no clear effects on return migration in our analysis. The austerity fatigue and the financial downturn provoked important implications on existing immigrants in Greece with declines in their wages and unemployment in the short run something that aggravated elevated departures from the country.

### **6.3.2. Policy Implications**

Apparently, these findings imply that financial, social and institutional determinants play a significant role in immigrants' intention to leave Greece and return to their own due to the financial recession. The increase in insecurity and imbalance within the Greek society consequently affected the phenomenon of return migration.

In the post – crisis period the existence of a structural mechanism in managing return migration outflows is documented. As a result, on the post-recession era an in – depth evaluation of the determinants which play a crucial role on return migration is essential. This thesis encourage governments, international organizations, academics and institutions to further focus on new factors that may motivate immigrants with different behavioural patterns to return to their home region.

## **6.4. Immigration, emigration and return migration: Determinants that affect the global Phenomenon.**

The thesis models and examines the financial, social and institutional determinants that motivate:

- a) Immigration towards European countries with the special case study of Greece. In the late 1980s, Greece became an immigration country, where most of the immigrants to Greece in this time period were repatriated Greeks. The immigration boom reached its peak towards the beginning of the 1990s, following the fall of the Soviet Union in 1989, when co-ethnic Greeks (meaning foreigners with Greek heritage) from former Soviet bloc countries, co-ethnic Greeks from Albania and other Balkan nations, and economic migrants from the Balkans and Eastern European countries like Russia, Ukraine, Georgia, Bulgaria, Romania, and Poland, flooded into Greece.
- b) Emigration from Greece towards wealthier countries. Since 2009, Greece faces

one of its hardest financial crises. Unemployment rates have dramatically increased as well as long-term unemployment which shows the depth of the economical crisis. Moreover, lower wages, higher Tax levels results in the fact that more and more Greek nationals decide to choose migration to more prosperous destinations as an adjustment mechanism in the wake of economic downturn, in order to alter their financial and social conditions.

- c) Return migration in Greece where the existing regular immigrants in Greece abandon the country and return to their own during this financial recession. The financial crisis for Greece in 2009 has provoked rising financial and social problems not only for Greek nationals but also for many immigrant workers. The austerity weakness and the economic recession had negative impact on the immigrant employers who faced unemployment, lower wages and started considering abandoning their host country and returning to their home one as it was the only solution to their unemployment problem, when the Greek economy was slowing down.

Even though they are three distinct research problems, it is interesting to analyse the overall result. From the three empirical studies we find out that there is no real common factor that affects in the same way all of the three cases. However, we notice some interesting results for the following parameters:

- GDP Growth rate: We notice that this variable is significant for the case of immigration towards Greece and for the case of return migration but not for emigration from Greece of Greek nationals. It seems to be a parameter that affects only immigrants. It has no real impact to Greek nationals. Moreover, it is positively related in the case of immigration and negatively for the return migration.

In the case of immigration towards Greece, positive relation means that higher GDP growth rates implies higher rates of immigrants flows who are ‘attracted’ (pull factor) towards the destination country (in this case Greece). Thus, GDP growth rate seems to be a crucial pull factor for immigrants who decided to settle in Greece.

In the case of return migration, negative relation means that lower GDP growth rates implies higher rates of immigrants that decide to ‘leave’ Greece

(push factor) and return to their native countries.

Thus, GDP growth rate seems to be a crucial push factor for the same immigrants that came in Greece and now decide to leave the country to the financial crisis.

As a result, GDP growth rate is a push factor for immigrants in Greece (as it was a pull factor when they settled in Greece) but not for Greek nationals who decide to abandon Greece and emigrate towards wealthier countries.

- Central Government Debt: We notice that Central Government Debt which appears as an independent variable in the three cases, is not a significant variable for the case of immigration in Greece, but it is a significant determinant in the case of emigration and return migration from Greece. It seems to be a parameter that affects only the decision of leaving Greece (push factor) towards more prosperous countries but not as an attractive parameter (pull factor) for immigrants who decided to move in Greece.

In the case of emigration and return migration from Greece the positive sign of the regression coefficient that was found means that higher Central Government Debt implies higher rates of emigration flows or return migration flows who are 'push out' (push factor) from Greece.

As a result, Central Government Debt is a push factor for Greek nationals as well as immigrants in Greece who decided to leave Greece due to the crisis.

- Corruption: We remind that the corruption perceptions index (CPI) is published by Transparency International (TI) since 1995 with annually ranking countries "by their perceived levels of corruption, as determined by expert assessments and opinion surveys." The CPI generally defines corruption as "the misuse of public power for private benefit." Its scale goes from 0 (highly corrupt) to 10 (very clean) for the period we study (1990-2012). Since 2013 the scale goes from 0 to 100.

We notice that this variable is significant for the case of emigration and return migration from Greece. However, there is a negative sign in the case of emigration and a positive sign for the return migration case.

In the case of emigration from Greece, negative relation means that lower corruption index (higher corruption) implies higher rates of emigrants flows

who are 'pushed' (pull factor) to leave their native country. Thus, high corruption seems to be a crucial push factor for Greek national who decided to leave from their native country.

In the case of return migration, positive relation means that higher corruption index (low corruption, cleaner country) implies higher rates of return migration flows who are 'pushed' (pull factor) to leave Greece where they were settled as immigrants.

At first glance, this positive sign seems to give contradictory results. However, one could think that a cleaner country in terms of corruption could make some procedures more transparent. This transparency may have positive impacts for Greek nationals but negative ones for immigrants.

According to Baldwin-Edwards et al. (1999), Greece has a large informal economy that accounts up to 30-35 per cent of the GDP. Small-scale family businesses are prominent in Greece. In order for them to be sustainable and competitive, they need to use cheap labour hands, unskilled or semi-skilled. In other countries, part time or seasonal employment of the young population, such as students, meets these needs. However, most families prefer sustaining their children till they find a high status job - preferably in the public sector- to letting them perform an unskilled one. A large number of young Greeks consider working in menial jobs degrading, therefore "labour shortages are largely met by immigrants who are willing to be geographically mobile and to be flexible with regard to working practices and wages". The existence of such economic and social parameters render the demand for cheap labour imperative: the immigrants fill in an important gap in the labour market of the black economy. A less corrupted country may have negative impacts to black economy and as a consequence for immigrants who live from such labour. Therefore, the positive sign of this coefficient factor could mean that a less corrupted country could be a push factor for settled immigrants.

## **6.5. Limitations of the Study**

Although the research presented in this thesis provides useful and novel evidence, there are some unavoidable limitations, which can distort the reliability and the accuracy of the data finding, and therefore, it puts some restrictions in the ability of the researcher to analyze the results.

First, had the dataset been extended further, whilst there was lack of complete data availability, partly due to difficult direct access of website data sets but primarily due to incomplete data information provided by Immigration Organizations' Publications, the robustness of the results would be more cemented and upscale partly due to difficult direct access of Associations' data sets and due to incomplete data information provided by them. The available datasets did not provide complete information for certain variables (like data for tax revenues for the first years) and had missing data for some of the factors that were present.

Second, the thesis relies on annual data in its empirical tests. It is well known that annual data is noisy, and particularly so for testing cross - sectional models.

Third, the existing research covers a small number of regular immigrants. The reason behind the limited sample is the recent introduction of Greek immigrants and regular return immigrant's Greek context. It may be beneficial to include in any further research larger sample of immigrants and compare it with an equal sample of European one. This will allow future researchers to come out with more accurate results.

Fourth, the thesis studies the linkages between immigration and financial defaults without capturing macroeconomic fundamentals and other common factors, such as economic activity. By using a set of control variables, the robustness of the results would be strengthened further.

Fifth, Greece differentiates in the method that Organizations follow to publish their datasets. It is one of the few countries around the world that publications follow compulsory status. Thus automatically means that we compare our sample with various other countries with disclosure restricts by regulations in order to provide accurate results. Though the plans by European Commission regarding the change of the regulation will help on the direction of consistency with most organizations.

## **6.6. Directions for Future Research**

Despite the above limitations, the findings provide a useful contribution towards the existing body of migration accuracy. Supplementary research could overcome the boundaries, which delimit the conducted research, and arrive at more robust conclusions. In particular, modern socioeconomic systems exhibit a high degree of interdependence, with connections between financial, social and institutional factors and the migration procedures.

Second, there is a lot of room for improvement in the availability of the data on the cross-border interconnections beyond immigration organizations. Third, a future research can develop more complex models that are capable of incorporating the phenomenon of migration and government interventions and the behavioural responses of the different types of agents to the immigrants' management. Furthermore, there are other techniques commencing from push and pull theory which offer several advantages and will be very suitable for similar research, such as the neoclassical economic theory, and the new economics of labour migration.

Fourth, the ongoing flow of migrants into Europe from Syria, Afghanistan and Iraq presents a striking research issue. Whilst the Syrian conflict has significantly negative impacts on international social, political and financial cohesion, there is a strong necessity for the researchers to link theory and practice and provide future studies on the pressing subject of migration.

Fifth, the global crisis and the sluggish recovery of 2009 challenged the functioning of immigration flows and constitute a reminder of the importance of understanding interconnections and risks in the global economy. The increasing trend in globalization, and even more significant, in cross-border immigration activities, suggests that the phenomenon can take many different forms. With the recent inflows of Syrian immigrants into the European continent the understanding of transnational channels of these individuals has become essential, not only from an academic perspective, but also policymaking. The challenges faced by policy coordination after the initial influxes introduce wide-ranging issues on political, social, and financial policies.

In conclusion this thesis basically shows that the research in migration is far from being complete.

## Appendix A: Variable Definitions

### Applies for Chapter 3

Panel A: Dependent Variables	
Variable	Definition
Migration Inflows	The total number of immigrants who flow in a country.
Migration Outflows	The total number of immigrants who flow out of a country.
Panel B: Financial Characteristics	
Variable	Definition
GDP Growth Rate	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 US\$.
10-years Government Bond Yield	The rate of interest we expect to receive from the bond and it is calculated as a redemption yield, that means how much we would get if we held the bond to its end date.
Inflation Rate	The rate at which the general level of prices for goods and services is rising and subsequently, purchasing power is falling on a year-on-year basis.
Unemployment Rate	The percent of the total labour force that is unemployed, but actively seeking employment and willing to work. Unemployment rate is one of the most closely watched variables because a rising rate is seen as a sign of weakening economy.
Debt to GDP Ratio	Indicates the country's ability to pay back its debt. It is expressed as a percentage and it can be interpreted as the number of years needed to pay back debt if GDP is dedicated to debt repayment.
Central Government Debt	The entire stock of direct government fixed term contractual obligations to others, outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. As it is a stock it is measured as of a given date, the last day of the fiscal year.
Imports of Goods	Are goods that add to the stock of material resources of a country by entering its economic territory.



## Appendix B: Variable Definitions

### Applies for Chapter 4

Panel C: Dependent Variables	
Variable	Definition
Emigration	The act of leaving one's native country with the intent to settle elsewhere.
Panel D: Financial Characteristics	
Variable	Definition
Cash Surplus	The amount of an asset or resource that exceeds the portion that is utilized. A surplus is used to describe many excess assets including income, profits, capital and goods.
Central Government Debt	The entire stock of direct government fixed term contractual obligations to others, outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. As it is a stock it is measured as of a given date, the last day of the fiscal year.
Exports of Goods	Represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.
Foreign Direct Investment	A passive investment in the securities of another country such as public stocks and bonds, by the element of control.
GDP per capita	A measure of the total output of a country that takes the gross domestic product (GDP) and divides it by the number of people in the country.
Imports of Goods	Represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services.
Bank Capital	Represents the net worth of the bank or its value to investors. The asset portion of a bank's capital includes cash, government securities and interest-earning loans like mortgages, letters of credit and inter-bank loans. The liabilities section of a bank's capital includes loan-loss reserves and any debt it owes.
Lending Interest	Is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing. The terms and conditions attached to these rates differ by country, however, limiting their comparability.
Long – term Unemployment	Is defined as referring to people who have been unemployed for 12 months or more. The ratios calculated here show the proportion of these long-term unemployed among all unemployed, hereafter called long-term unemployment rates. Lower duration limits (e.g. six months or more) are sometimes considered in national statistics on the subject.
Population Growth	An increase in the number of people that reside in a country, state, county, or city. To determine whether there has been population growth, the following formula is used: (birth rate + immigration) - (death rate + emigration). Businesses and governmental bodies use this information to make determinations about investing in certain communities or regions.
Poverty	Inequality in the distribution of income, consumption or other attributes across the population; and vulnerability.
Level of Democracy	A form of government in which the supreme power is vested in the people and exercised directly by them or by their elected agents under a free electoral system.
Corruption	Is the misuse of <i>entrusted</i> power (by heritage, education, marriage, election, appointment or whatever else) for private gain.
Bureaucracy	An administrative system in which the need or inclination to follow rigid or complex procedures impedes effective action

## Appendix C: Variable Definitions

### Applies for Chapter 5

Panel E: Dependent Variables	
Variable	Definition
Return Migration	The voluntary or involuntary return of travellers and migrants to their place of origin
Panel F: Financial Characteristics	
Variable	Definition
Central Government Debt	The entire stock of direct government fixed term contractual obligations to others, outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. As it is a stock it is measured as of a given date, the last day of the fiscal year.
Total Reserves	Are the assets that a bank has immediately available to cover its liabilities. Total reserves count against the bank's reserve requirements.
Unemployment	Unemployment occurs when a person who is actively searching for employment is unable to find work. Unemployment is often used as a measure of the health of the economy. The most frequently cited measure of unemployment is the unemployment rate. This is the number of unemployed persons divided by the number of people in the labour force.
Market Capitalization	Is the total market value of the shares outstanding of a publicly traded company; it is equal to the share price times the number of shares outstanding.
Corruption	Is the misuse of entrusted power (by heritage, education, marriage, election, appointment or whatever else) for private gain.
Bureaucracy	An administrative system in which the need or inclination to follow rigid or complex procedures impedes effective action.
Poverty	Inequality in the distribution of income, consumption or other attributes across the population; and vulnerability.
Tax Revenue	Forms part of the Receipt Budget, which in turn is a part of the Annual Financial Statement of the Union Budget

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